TO: The Engineering Faculty

FROM: The Faculty of the Department of Biomedical Engineering

RE: New Undergraduate Program Degree Requirements for the Bachelor of Science in Biomedical Engineering

The faculty of the Department of Biomedical Engineering has approved the following new course requirements. This action is now submitted to the Engineering Faculty with a recommendation for approval.

Reason: The proposed program degree requirements for the Bachelor of Science in Biomedical Engineering are to establish the minimum requirements for this new program. The proposed program degree requirements provide students with the necessary basic science and engineering knowledge and skills, integration of engineering and life sciences early and continuously throughout the program, and an exposure to other related engineering disciplines and to the breadth of the field of biomedical engineering. The proposed degree program is intended to satisfy ABET requirements for Biomedical Engineering. The plan of study provides students with an integrated and efficient pathway of course selection, allowing for diversification in the final year depending on student interest.

George Wodicka
Professor and Head
Department of Biomedical Engineering

B.S. BME Degree Program Requirements

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

Credit Hours Required for Graduation: 130

Freshman Requirements:[1] (31 credit hours; see Freshman Engineering)
[1] No more than 8 credit hours of freshman calculus can be applied towards the BME degree.

Core Biomedical Engineering (BME) Courses (18 credit hours):
BME 201, 204, 205, 206, 301, 304, 305, 306, 390.

BME Breadth Requirement (50 credit hours):

Core Life Sciences Requirement: **BIOL** 295E and three (3) additional Life Science courses* at the 300-level or above.
Core Engineering Requirement: **ABE** 591W; **ECE** 301; **IE** 230*; **ME** 200, 270, 309; and **MSE** 230. (*or **STAT** 503)
BME/Engineering Electives: Three (3) additional BME/Engineering courses* at the 400-level or above.
Senior Design Requirements: BME 405
Other Requirements: **CS** 490B

Advanced Physics (3 credit hours):
PHYS 241

Advanced Math (7 credit hours):
MA 261 and (**MA** 266 or **MA** 262)

General Education Electives (18 credit hours): Course selections must meet the General Education Program requirements. Refer to "*General Education Program*." Includes an ethics elective to be chosen from either **PHIL** 270 or **PHIL** 280.

Unrestricted Elective (3 credit hours): Additional coursework to bring the total to at least 130 hours.

GPA Requirement: A Graduation Index of 2.0 or better is required to fulfill the BSBME degree requirements. A minimum overall GPA of 2.0 is required in major-area (BME) courses to qualify for graduation with a BSBME degree.

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* Selected from a list of courses approved by the Biomedical Engineering faculty and maintained by the undergraduate advising office.

Suggested Plan of Study

Credit Hours Required for Graduation: 130

Freshman Year, see Freshman Engineering

Sophomore Year

Third Semester		*Fourth Semester*	
(4) MA 261	Multivariate Calculus	(3) MA 266	Ordinary Differential Equations
(3) PHYS 241	Electricity and Optics	(3) MSE 230	Structure and Properties Materials
(3) BIOL 295E	Biology of the Living Cell	(3) BME 204	Biomechanics Hard/Soft Tissue
(3) BME 201	Biomolecules	(1) BME 206	BME Laboratory II
(1) BME 205	BME Laboratory I	(3) ME 200	Thermodynamics I
(3) ME 270	Basic Mechanics	(3) General education elective	
17		16	

Junior Year

Fifth Semester		*Sixth Semester*	
(3) BME 301	Bioelectricity	(3) BME 304	Bioheat and Mass Transfer
(2) BME 305	Bioinstrumentation Lab	(1) BME 306	Biotransport Laboratory
(1) BME 390	BME Professional Seminar	(3) ECE 301	Signals and Systems
(4) ME 309	Fluid Mechanics	(3) IE 230	Probability and Statistics in Engr.
(3) Life Science elective		(3) CS 490B	Introduction Bioinformatics
(3) General education elective		(3) Ethics elective	
16		16	

Senior Year

Seventh Semester	*Eighth Semester*
(3) ABE 591W Nonlinear Dyn. Biol. Sys.	(4) 405 BME Design Project*
(3) BME/Engineering elective	(*or can be taken in the Fall)
(3) BME/Engineering elective	(3) BME/Engineering elective
(3) Life Science elective	(3) Life Science elective
(3) General education elective	(3) General education elective
(3) Unrestricted elective	(3) General education elective
18	16