BIOLOGICAL ENGINEERING

Sample Program for Biological Engineering which meets requirements for the Biomedical Eng Minor and pre-med study (Applies to students matriculating in the Fall Semester of 2015 or later; for rules see the notes section on respective pages.)

Name: Empl ID: Last Revised: 8/18/2017
E-mail: Advisor: Double Major:
Minor: Antic. Grad Date:

:		P	Antic. Grad Date:	
Course Title and			Credit	Total
Required Credits	Course	Grade	Hours	Credits
1. Mathematics: 16 credits				
Calculus for Engineers*	MATH 1910 ^a		4	
Calculus for Engineers*	MATH 1920 ^a		4	
Engineering Math* (Diff. Equations)	MATH 2930		4	
Engineering Math* (Linear Algebra)	MATH 2940		4	16
2. Physics: 8 credits				
Mechanics	PHYS 1112		4	
Heat/Electromagnetism	PHYS 2213		4	8
Pre-medical stu	idents may petition the College of Engienering	to subsitute PH	YS 2208	
3. Chemistry: 7 credits				
General Chemistry	CHEM 2070 or 2090 ^a		4	
Organic Chemistry	CHEM 3570 ^a		3	7
-	Chem II and O-Chem II are counted in num	ber 9		
4. Biological Sciences: 15 credits				
Introductory Biological Science ^{a,d}	BIOG 1440 ^b		3	
Introductory Biological Science ^{a,d}	BIOEE/BIOSM 1610 or BIOMG 1350		3	
Introductory Bio Lab ^d	BIOG 1500		2	
Biochemistry (BIOBM 3300 ^b or 3310-3320 recommended)			4-5	
BIOMG 3300 (4) or 3330 (4) or 3310+				
Advanced Biol. Sci. Elective (to complete 15 cr)	* *		3-5	
Microbiology/Micro Lab (both recomm	nended) or BIOMI 2900/2910 ^{a,b}			
Behavior/Neurobiology or	BIONB 2210 ^a /2220 ^{a,b}			
Physiology/Histology	BIOAP 3110 ^{a,b} /4130 ^a			15-18
	DIOAI 3110 /4130			13-16

- 6. **Liberal Studies:** 18 credits (Minimum of six courses in at least three of the seven groups; at least two of the six courses at or above 2000 level.)
 - (1) Cultural Analysis (CA)
 - (2) Historical Analysis (HA)
 - (3) Literature and the Arts (LA)
 - (4) Knowledge, Cognition and Moral Reasoning (KCM)
 - (5) Social & Behavior and Analysis (SBA)
 - (6) Foreign Languages (not literature) (FL)
 - (7) Communications in Engineering (CE)

Course Title	Course #	Category	Grade	Credits
		,		3
			i	3
				3
				3
				3
				3

18

7. Computer Programming: 4 credits			
Intro to Computer Programming	CS 1112	4	4
8. Engineering Distribution and Field Course (a) Required Courses	es: 46 credits		
Mechanics of Solids Engineering Statistics and Probability (b) Required Biological Engineering Core C	ENGRD 2020 ^c CEE 3040 or ENGRD 2700	3-4	
Intro to Engineering Thermodynamics (recommended) Engineering Distribution Bio-Fluid Mechanics Design and Analysis of Biomaterials Heat and Mass Transfer in BioEng	ENGRI 1XXX BEE 2220 BEE/ENGRD 2600 BEE 3310 BEE 3400 BEE 3500	1-3 3 3 4 3 3	
Molecular and Cellular BioEng Bioinstrumentation (c) Biological Engineering Focus Area Elect Choose 5 or more courses from 1 or more of	the 7 focus areas to complete the 46 engin	3 3-4 neering credits	
Com-Aided Engineering Biomed Materials & Their Applications Biomed Eng Analys of Metabolic & Struct Biomedical Engineering Undergraduate Research	BEE 4530 ^b MSE 4610 ^b BME 4010 BME 4810 BEE 4990	3 3 3 3 1	
9. Advisor Approved Electives: 6 credits General Chemistry II Organin Chemistry II, O Chem Lab	CHEM 2080 ^a CHEM 3580 ^a /2510 ^a	4 5	46-49
BEE 4530 Technical Writing Course BEE 4530 Capstone Design Course BEE 4500 Engineering Laboratory Course		GRAND Total Credits:	134-142 (Minimum 126)
PE PE	EHS Lab Safety Course		

Name:

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 $^{{}^{\}rm a} Course \ satisfying \ pre-medical \ requirements.$

^bRed highlighted courses satisfy the Biomedical Engineering Minor.

^cEngineering distribution requirement is satisfied by ENGRD 2020 and ENGRD 2600.

^dChoose BIOG 1440, BIOEE 1610 or BIOMG 1350 plus BIOG/BIOSM 1500.

^eSome medical schools are requiring one term of organic chem and one term of biochem instead of 2 terms of O-chem and O-chem lab.