

**B.S. in Biological Engineering
Core Curriculum
130 Semester Hours**

3/26/2008

Freshman

ENGR 1120 Engr. Graphics & Design	3	BIOL 1107 & L - Biology	4
ENGR 1140 - Comput. Engr. Methods	2	CHEM 1212 & L - Frsh Chem II	4
CHEM 1211&L – Frsh Chem I	4	MATH 2260 - Integral Calculus	4
MATH 2250 – Anal. Geo Calc.	4	PHYS 1211 & L - Physics	4
ENGL 1101 - English Comp.	<u>3</u>		
	16		<u>16</u>

Sophomore

ENGR 2120 - Statics*	3	ENGR 2110 - Engr. Dec. Making	3
BIOL 1108 & L - Biology	4	ENGR 3160 - Fluid Mech.	3
MATH 2500 - Calculus	3	ENGR 2170 – Elec. Circuits <u>or</u> ENGR 2140 – Str. Of Mat’ls	3
ENGL 1102 - English Comp.	3	ENGR 2920 - Engr. Design Meth*	2
PHYS 1212 & L - Physics	4	CHEM 2211 & L - Organic Chemistry	4
	<u>17</u>	MATH 2700 - Diff. Equations	<u>3</u>
			18

Junior

ENGR 3140 Thermodyn.	2	ENGR 2170 - Elec. Circuits <u>or</u> ENGR 2140 – Str. Of Mat’ls	3
ENGR 3150 - Heat Transf.	3	ENGR course	3
ENGR 3520 - Mass Tr./Rate Phen.	3	ENGR course	3
MIBO - Microbiology	4	ENGR course	3
BCMB 3100 or 4010 - Biochemistry	<u>3</u>	SPCM 1100 – Speech <i>(meets Area C core curriculum requirement)</i>	3
	16	Free Elective	<u>2</u>
			17

Senior

ENGR course	3	ENGR 4920 - Engr. Design	4
ENGR course	3	ENGR course	3
English Lit <i>(meets Area C core curriculum requirement course)</i>	3	Social Science****	3
Social Science****	3	Social Science****	3
Major Sci. Elec.*****	<u>3</u>	Social Science****	<u>3</u>
<i>(Generally, a 3000 or higher biology or ecology course: seek advisor approval)</i>	15		<u>16</u>

Area C (SPCM 1100 and English Lit.) and Area E (social sciences) courses may be taken any term, not necessarily in the order shown. The Area E social science requirement (12 hours) usually includes POLS 1101 and HIST 2111 (or 2112) in order to satisfy the Regents requirements.

Suggested courses for meeting Cultural Diversity Requirements

Area C courses: CMLT 2111, 2400, 2500; ENGL 2400

Area E courses: AFAM 2000; ANTH 1102; HIST 2051, 2221, 2601, 2701; GEOG 1101, 1103; SOCI 2820; WMST 1110

*Competency in a computer programming language is a co-requisite for **ENGR 2120 and 2920. ENGR 1140**

“Computational Engineering Methods” (2 semester hours) will satisfy that requirement.

*****Suggested Science Elective Courses: BCMB(CHEM) 4110; BCMB(ENTO) 4200; CBIO(BIOL) 3400; MIBO 4090; CBIO(MIBO) 4100; CRSS 4600-4600L; ECOL(BIOL) 3500-3500L; VPHY 3100

One semester hour of Physical Education which is in addition to the 130 hours required for this degree.

Environmental Area of Emphasis**Required Area of Emphasis Courses**

ENGR 3410 Intro. To Natural Resource Engr
 ENGR 3440 Water Management
 ENGR 4440 Environmental Engineering Unit Operations
 ENGR 4450 Environmental Engineering Remediation Design
 ENGR 4480 Instrumentation for Environmental Quality

Elective Area of Emphasis Courses (3 hrs)

ENGR 3420 Soil Mechanics
 ENGR 4940 Intro. To Systems Modeling
 ENGR 4460. Design of Natural Wastewater Treatment Systems
 ENGR 4660 Sustainable Building Design
 FORS 4120 Forest Hydrology **or** CRSS 3060 Hydrology and Soils

Biochemical Area of Emphasis**Required Area of Emphasis Courses**

ENGR 4230 Sensors and Transducers
 ENGR 4650 Structural Environments I
 ENGR 4510 Biochemical Engineering
 ENGR 4520 Design of Biochemical Separations Processes

Elective Area of Emphasis Courses (6 hrs)

ENGR 4940 Intro. To Systems Modeling
 ENGR 3540 Physical Units Operation

**Biomedical
Area of Emphasis****Required Area of Emphasis Courses**

ENGR 3720 Engineering Physiology
 ENGR 4210 Linear Systems (Instrumentation Track) **or**
 ENGR 3760 Biomechanics (Biomechanics Track)
 ENGR 4230 Sensors and Transducers
 ENGR 4740 Biomaterials

Elective Area of Emphasis Courses (6 hrs)**Biomechanics Track**

ENGR 3610 Structural Design
 ENGR 4350 Finite Elements
 ENGR 4650 Structural Environments I

Instrumentation Track

ENGR 3270 Electronics
 ENGR 4240 Introduction to Microcontrollers