

**EXAMPLE BIOENGINEERING UNDERGRADUATE CURRICULUM**

(For students entering the program Fall 2014 through Fall 2022)

One possible four-year path for pre-med students through the curriculum

**BOLDFACED** courses are Bioengineering Core or Track Elective courses

*Italicized* courses/text are prerequisites/requirements for medical/dental school

**FRESHMAN YEAR**

FALL SEMESTER	Credits	SPRING SEMESTER	Credits
MATH 0220: Analytical Geometry & Calculus 1	4	MATH 0230: Analytical Geometry & Calculus 2	4
<i>PHYS 0174: Basic Physics for Science &amp; Engineering 1</i>	4	<i>PHYS 0175: Basic Physics for Science &amp; Engineering 2</i>	4
<i>CHEM 0110: General Chemistry 1</i>	4	<i>CHEM 0120: General Chemistry 2</i>	4
ENGR 0011: Introduction to Engineering Analysis	3	ENGR 0012: Introduction to Engineering Computing	3
Humanities/Social Science Elective <sup>(a)</sup>	3	Humanities/Social Science Elective <sup>(a)</sup>	3
ENGR 0081: Freshman Engineering Seminar 1	0	ENGR 0082: Freshman Engineering Seminar 2	0
	<u>18</u>		<u>18</u>
Other semester activities: Volunteer (V)/Clubs		Other semester activities: V/Clubs	

**SUMMER SEMESTER:** V and/or Research (R) and/or Shadow (S) and/or Fellowships (F)

<sup>(a)</sup> Psychology is required for medical/dental school. Students can take, e.g., PSY0010 or PSY 1250 to meet this requirement

**SOPHOMORE YEAR**

FALL SEMESTER	Credits	SPRING SEMESTER	Credits
<b>BIOENG 1070</b> : Introductory Cell Biology 1	3	<b>BIOENG 1071</b> : Introductory Cell Biology 2	3
<i>BIOESC 005x: Foundations of Biology Lab 1</i>	1	<b>BIOENG 1210</b> : Biothermodynamics	3
MATH 0240: Analytical Geometry & Calculus 3	4	<b>BIOENG 1310</b> : Bioinstrumentation	3
MATH 0290: Differential Equations	3	<b>BIOENG 1630</b> : Biomechanics 1	3
ENGR 0135: Statics & Mechanics of Materials 1	3	<i>BIOESC 0067: Foundations of Biology Research Lab</i>	1
<i>CHEM 0310</i> : Organic Chemistry 1	3	<i>CHEM 0320</i> : Organic Chemistry 2	3
<b>BIOENG 1085</b> : Introduction to Bioengineering (Seminar)	0	<i>CHEM 0345: Organic Laboratory</i>	2
	<u>17</u>	<b>BIOENG 1085</b> : Introduction to Bioengineering (Seminar)	0
			<u>18</u>
Other semester activities: V/R/Leadership (L)		Other semester activities: V/R/L	

**SUMMER SEMESTER:** V and/or R and/or S and/or F or Study Abroad. Start MCAT preparation

**JUNIOR YEAR**

FALL SEMESTER	Credits	SPRING SEMESTER	Credits
<i>BIOENG 1000: Statistics for Bioengineering</i>	4	<b>BIOENG 1002</b> : Intramural Internship	3
<b>BIOENG 1220</b> : Biotransport Phenomena	3	<b>BIOENG 1150</b> : Bioengineering Methods & Applications	3
<b>BIOENG 1320</b> : Biological Signals & Systems	3	Biosignals App Course ( <b>BIOENG 1580/1680</b> ) or Track Elective <sup>(b)</sup>	4 or 3
<i>BIOESC 1250: Human Physiology</i>	3	Track Elective <sup>(b)</sup> if not selecting Biosignals Application	3
MATH 0280: Introduction to Matrices & Linear Algebra	3	Track Elective <sup>(b)</sup> or Imaging Elective	3
<b>BIOENG 1085</b> : Introduction to Bioengineering (Seminar)	0	Humanities/Social Science Elective	3
	<u>16</u>	<b>BIOENG 1085</b> : Introduction to Bioengineering (Seminar)	0
			<u>16 or 18</u>
Other semester activities: V/R/L; MCAT preparation		Other semester activities: V/R/L; MCAT preparation	

**SUMMER SEMESTER:** R/F; Take MCAT in May or June; Apply to Health Professions Committee; Apply to AMCAS, AACOMAS, or AADSAS; Study Abroad

<sup>(b)</sup> Biochemistry/chemical biology is required for medical/dental school. Students can take **BIOESC 1000** /**CHEM 1810** to meet this requirement

**SENIOR YEAR**

FALL SEMESTER	Credits	SPRING SEMESTER	Credits
<b>BIOENG 1160</b> : Bioengineering Design 1	3	<b>BIOENG 1161</b> : Bioengineering Design 2	3
Biosignals Application Course ( <b>BIOENG 1255</b> ) or Track Elective	4 or 3	Biosignals Application Course ( <b>BIOENG 1255</b> ) or Track Elective <sup>(c)</sup>	4 or 3
Track Elective <sup>(c)</sup> if Biosignals Application already selected	3	Track Elective <sup>(c)</sup> or Imaging Elective if Biosignals already selected	3
Track Elective <sup>(c)</sup> or Imaging Elective	3	BIOENG 1241: Bio-Ethics	3
Advanced (Free) Engineering/Science Elective	3	Advanced (Free) Engineering/Science Elective	3
Humanities/Social Science Elective	3	Humanities/Social Science Elective	3
<b>BIOENG 1085</b> : Introduction to Bioengineering (Seminar)	0	<b>BIOENG 1085</b> : Introduction to Bioengineering (Seminar)	0
	<u>16 or 18</u>		<u>16 or 18</u>
Other semester activities: V/R/Interview		Other semester activities: V/R/Interview	

<sup>(c)</sup> Microbiology is required for some dental schools. Students can take **BIOESC 1850** to meet this requirement

**NOTE:** All students must have an imaging course that is on the approved list of imaging courses

**NOTE:** Four (4) of the 8 Advanced Engineering/Science Electives (6 Track plus 2 Advanced (Free) Engineering/Science Electives) **must be** engineering courses (any department)

**NOTE:** Humanities/Social Science Electives must be taken from the approved School of Engineering list

**NOTE:** At least one course must have a **W** (writing) designation

**NOTE:** Medical/dental schools require 2 English courses (not film)