

# Biological Engineering Major, Premedical Program Plan

It is possible for students to combine premedical requirements with requirements for the Biological Engineering major. Some of the premedical requirements add to the total amount of credits required. This combination may be completed within five years, if the student is very diligent. Medical schools *do not* accept AP, CLEP, or ACT scores toward fulfillment of English Composition, Chemistry, or Biology requirements. The following schedule is designed to satisfy the requirements without time conflicts. Students who must deviate from this schedule should be sure to meet often with a College of Engineering advisor.

## Preengineering: First Three Years

### First Year (30 credits)

#### Fall Semester (14 credits)

BIOL 1610 <sup>1,3</sup> Biology I.....	4
BIE 1890 Introduction to Undergraduate Research Methods.....	1
CHEM 1210 <sup>3</sup> Principles of Chemistry I.....	4
CHEM 1215 <sup>3</sup> Chemical Principles Laboratory I.....	1
MATH 1210 (QL) <sup>3</sup> Calculus I.....	4

#### Spring Semester (16 credits)

BIE 1880 <sup>3</sup> Engineering Quantification of Biological Processes.....	3
BIOL 1620 (BLS) Biology II.....	4
CHEM 1220 (BPS) Principles of Chemistry II.....	4
CHEM 1225 Chemical Principles Laboratory II.....	1
MATH 1220 (QL) <sup>3</sup> Calculus II.....	4

## Second Year (32 credits)

#### Fall Semester (15 credits)

PHYS 2210 (QI) <sup>3</sup> General Physics—Science and Engineering I.....	4
MATH 2250 (QI) <sup>3</sup> Linear Algebra and Differential Equations.....	4
ENGL 1010 (CL1) <sup>3,5</sup> Introduction to Writing: Academic Prose.....	3
ENGR 2010 <sup>3</sup> Engineering Mechanics Statics.....	2
ETE 2270 <sup>3</sup> Computer Engineering Drafting.....	2

#### Spring Semester (17 credits)

PHYS 2220 (BPS/QI) General Physics—Science and Engineering II..	4
ENGL 2010 (CL2) <sup>3</sup> Intermediate Writing: Research Writing in a Persuasive Mode.....	3
ENGR 2030 <sup>3</sup> Engineering Mechanics Dynamics.....	3
ENGR 2450 <sup>3</sup> Numerical Methods for Engineers.....	3
BIOL 2320 <sup>4</sup> Human Anatomy.....	4

## Third Year (31 credits)

#### Fall Semester (15 credits)

BIE 2330 <sup>3</sup> Engineering Properties of Biological Materials.....	3
CHEM 2310 <sup>3</sup> Organic Chemistry I.....	4
CHEM 2315 Organic Chemistry Laboratory I.....	1
BIOL 2420 <sup>4</sup> Human Physiology.....	4
University Studies Breadth American Institutions (BAI) course.....	3

### Spring Semester (16 credits)

BIE 2400 <sup>3</sup> Biological and Environmental Thermodynamics.....	3
CHEM 2320 Organic Chemistry II.....	4
CHEM 2325 Organic Chemistry Laboratory II.....	1
BIOL 3060 (QI) <sup>4</sup> Principles of Genetics.....	4
ETE 2210 Electrical Engineering for Nonmajors.....	4

## Professional Engineering: Junior and Senior Years

### Junior Year (30 credits)

#### Fall Semester (15 credits)

BIE 3200 Introduction to Unit Operations in Biological Engineering.....	3
CEE 3500 Civil and Environmental Engineering Fluid Mechanics.....	3
STAT 3000 (QI) Statistics for Scientists.....	3
University Studies Breadth Humanities (BHU) course.....	3
University Studies Breadth Social Sciences (BSS) course.....	3

#### Spring Semester (15 credits)

BIOL 3300 (BLS) <sup>1,3</sup> General Microbiology.....	4
BIE 3670 Transport Phenomena in Bio-Environmental Systems.....	3
BIE 3870 Biological Engineering Design I.....	1
CHEM 3700 Introductory Biochemistry.....	3
CHEM 3710 Introductory Biochemistry Laboratory.....	1
University Studies Breadth Creative Arts (BCA) course.....	3

Students should plan to take the MCAT during summer prior to their final year.

## Senior Year (30 credits)

#### Fall Semester (15 credits)

BIE 4880 (CI) Biological Engineering Design II.....	3
BIE 5850 Biomaterials Engineering.....	3
BIE 5020 Biological Systems Modeling and Controls.....	3
BIOL 5210 <sup>4</sup> Cell Biology.....	3
BIE elective course.....	3

#### Spring Semester (15 credits)

BIE 3000 Instrumentation for Biological Systems.....	3
BIE 4890 (CI) Biological Engineering Design III.....	3
Engineering Elective.....	3
University Studies Depth Humanities and Creative Arts (DHA) course <sup>5</sup> .....	3
University Studies Depth Social Sciences (DSS) course.....	3

<sup>1</sup>The Breadth Life Sciences (BLS) area in the University Studies Program is satisfied by the combination of BIOL 1610 and 3300.

<sup>2</sup>To emphasize bioprocesses, premedical, etc., contact department for suggested technical electives.

<sup>3</sup>This course is required for admission to the Professional Engineering Program (PEP).

<sup>4</sup>These courses are highly recommended, but not required, for the premedical program. They fit in the schedule during the semesters shown. It is important for students to find out the requirements of the schools they desire to attend. Students should consult with the premedical advisor early in their program.

<sup>5</sup>AP English does not satisfy the two semesters of English Composition requirement. However, students may use AP English for ENGL 1010, and then take ENGL 2010 and ENGL 3040 (DHA) for the two semesters.