

UNIVERSITY OF THE PACIFIC BIOENGINEERING

The Bachelor of Science degree in Bioengineering is offered by University of the Pacific's School of Engineering and Computer Science. Within a few years of graduating, Pacific graduates are expected to achieve one or more of the following program:

BIOENGINEERING PROGRAM OBJECTIVES

- + Our graduates will have a thorough foundation in engineering and relevant knowledge of life sciences and ethical issues that enables successful careers in providing services and developing technologies and products to improve human health.
- + Our graduates will have a breadth and depth of opportunities, both academic and extracurricular, to enable them to develop their leadership and collaboration skills, especially the ability to communicate effectively.
- + Through a variety of opportunities including senior projects, mentored research and CO-OP's in industry, government, or academia, our graduates are well prepared to continue acquiring practical skills and experience.
- + Our graduates will be qualified to practice as an engineer and/or pursue advanced study in bioengineering and related fields (e.g. MS, PhD, MD, DDS).

Bioengineering is an extremely exciting field. By integrating information, methods and tools of engineering with knowledge found in the sciences and mathematics, it promises challenging careers in a broad range of fields, including medical research and the design of medical instruments, to name just a few.



BENG

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BACHELOR OF SCIENCE IN BIOENGINEERING - PROGRAM CURRICULUM

LOWER DIVISION CURRICULUM

FIRST YEAR (32 ACADEMIC UNITS)

FALL

BIOL 61 [5] PRINCIPLES OF BIOLOGY
ENGR 10 [1] DEAN'S SEMINAR
MATH 51 [4] CALCULUS I
PACS 1 [4] PACIFIC SEMINAR 1
BENG 5 [1] INTRODUCTION TO BIOENGINEERING

SPRING

BIOL 51 [5] PRINCIPLES OF BIOLOGY
MATH 53 [4] CALCULUS II
PACS 2 [4] PACIFIC SEMINAR 2
PHYS 53 [5] PHYSICS I

SECOND YEAR (44 ACADEMIC UNITS)

SUMMER

CHEM 25 [5] GENERAL CHEMISTRY I
CHEM 27 [5] GENERAL CHEMISTRY II

FALL

ENGR 19 [3] COMPUTER APPLICATIONS IN ENGINEERING
MATH 55 [4] CALCULUS III
MECH 15 [3] MECHANICAL ENGINEERING GRAPHICS
PHYS 55 [5] PHYSICS II
GEN ED IA [3] GENERAL EDUCATION

SPRING

ECPE 41 [3] ELECTRIC CIRCUITS
ECPE 41L [1] ELECTRIC CIRCUITS LAB
ENGR 20 [3] ENGINEERING MECHANICS I (STATICS)
ENGR 45 [4] MATERIALS SCIENCE
MATH 57 [4] DIFFERENTIAL EQUATIONS

RECOMMENDED CAREER PATH ELECTIVES*:

BIOELECTRICAL CAREER PATH:

ECPE 71 [3] DIGITAL DESIGN
ECPE 71L [1] DIGITAL DESIGN LAB
+ CHOOSE ONE CLASS FROM OPTIONS BELOW:
ECPE 121 [4] DIGITAL SIGNAL PROCESSING
ECPE 141 [4] ADVANCED CIRCUITS
ECPE 172 [4] MICROCONTROLLERS
ECPE 174 [4] ADVANCED DIGITAL DESIGN

BIOMECHANICAL CAREER PATH:

BENG 140 [4] INTRO TO TISSUE ENGINEERING
+ CHOOSE ONE CLASS FROM OPTIONS BELOW:
ENGR 120 [3] ENGINEERING MECHANICS II (DYNAMICS)
ENGR 122 [3] THERMODYNAMICS I

UPPER DIVISION CURRICULUM

THIRD YEAR (37 - 42 ACADEMIC UNITS)

SUMMER

BENG 108 [4] ENGINEERING PHYSIOLOGY
ENGR 121 [4] MECH OF MATERIALS

FALL

BENG 103 [4] BIOMATERIALS
BENG 104 [4] BIOMEDICAL IMAGING
BENG 124 [4] BIOMECHANICS
-- [3-5] CAREER PATH ELECTIVE

SPRING

ENGR 25 [1] PROFESSIONAL PRACTICE SEMINAR
ENGR 110 [3] INSTR & EXP METHODS
GEN ED IIA OR IIC [3-4] GENERAL EDUCATION
MATH 37 OR 39 [4] INTRO TO STATISTICS AND PROBABILITY
-- [3-5] CAREER PATH ELECTIVE

FOURTH YEAR (16 - 17 ACADEMIC UNITS; 32 CO-OP UNITS)

SUMMER

ENGR 181 [16] CO-OP

FALL

ENGR 182 [16] CO-OP

SPRING

BENG 130 [4] BIOTRANSPORT
BENG 195 [4] SENIOR PROJECT
ENGR 30 [3] ENG ETHICS AND SOCIETY
PACS 3 [3] PACIFIC SEMINAR 3
GEN ED IB [3-4] GENERAL EDUCATION

BIOMEDICAL CAREER PATH † :

CHEM 121 [5] ORGANIC CHEMISTRY I
CHEM 123 [5] ORGANIC CHEMISTRY II
(*OTHER ELECTIVES MAY BE SUBSTITUTED PENDING PETITION APPROVAL)

† BIOENGINEERING STUDENTS INTERESTED IN APPLYING TO MEDICAL SCHOOL SHOULD SEEK THE ADVICE OF THE PREMEDICAL ADVISOR. MCAT PREPARATION REQUIRES ADDITIONAL COURSES OUTSIDE PROGRAM REQUIREMENTS, FOR EXAMPLE:

BIOL 101 [4] GENETICS | BIOL 153 [4] CELL BIOLOGY | PSYC 31 [4] INTRO TO PSYCHOLOGY | SOCI 51 [4] INTRO TO SOCIOLOGY

COOPERATIVE EDUCATION PROGRAM

32 UNITS OF COOPERATIVE EDUCATION WORK EXPERIENCE MUST BE COMPLETED FOR GRADUATION FROM THE SCHOOL OF ENGINEERING.

BIOENGINEERS THAT COMPLETE THE BIOMEDICAL CAREER PATH OR NON-U.S. CITIZENS ARE EXEMPT FROM THIS REQUIREMENT.

CO-OP COORDINATORS HELP ARRANGE RELEVANT FULL-TIME, PAID TRAINING JOBS WITH ENGINEERING EMPLOYERS.

STUDENTS ENTERING FALL 2017

CATALOG.PACIFIC.EDU | PRINT CATALOG YEAR: 2017 - 2018