

B.S. IN BIOMEDICAL ENGINEERING

CATALOG YEAR 2021-2022

Below is the *advised sequence* of courses for this degree program and prerequisites as of 12/18/20.

The official degree requirements and prerequisites found in the University General Catalog and the prerequisites are subject to change.

COURSE NUMBER AND TITLE	UNITS	PREREQUISITES
1ST SEMESTER		
MATH 122A/B or MATH 125 Calculus I with Applications	5/3	Appropriate Math Placement
CHEM 151 General Chemistry I or CHEM 161/163	4	Appropriate Math Placement
ENGL 101 or 107 or 109H First-Year Composition	3	
ENGR 102A/B Introduction to Engineering or ENGR 102	3	<u>ENGR102A</u> : MATH 112; <u>ENGR102B</u> : Concurrently enrolled or completion of MATH 122B or 125; FR & SOPH Status
Tier I General Education	3	
Semester Total		18/16
2ND SEMESTER		
MATH 129 Calculus II	3	MATH 122B or 125 with C or better
CHEM 152 General Chemistry II or CHEM 162/164	4	CHEM 151 or CHEM 161/163
PHYS 141 Introductory Mechanics or PHYS 161H	4	MATH 122B or 125 or appropriate Math Placement Level
ENGL 102 or 108 First-Year Composition	3	ENGL 101 or ENGL 107
BME 295C Challenges in Biomedical Engineering (Spring only)	1	
Tier I General Education	3	
Semester Total		18
3RD SEMESTER		
BE 284 Biosystems Thermal Engineering (Fall only) or AME 230 Thermodynamics (supports ME minor)	3	<u>For BE 284</u> : MATH 129; PHYS 141; <u>For AME 230</u> : PHYS 141
BME 214 Introduction Biomechanics (Fall only) or CE 214 Statics	3	For both: PHYS 141; MATH 129;
MATH 223 Vector Calculus	4	MATH 129 with C or better
MCB 181 R Introductory Biology I and MCB 181 L Biotechnology Laboratory	3 1	Appropriate Math Placement
ECE 175 Computer Programming for Engineering Application or CSC 250 Essential Computing for the Sciences (CSC Spring Only)	3	<u>For ECE 175</u> : Concurrent enrollment or completion of MATH 122B or 125
Semester Total		17
4TH SEMESTER		
BME 210 Intermediate BME Design: Electronics, Mechanisms, Controllers. (Spring only)	3	ECE 175
MATH 254 Intro to Ordinary Differential Equations	3	MATH 129 or 223 with C or better
PHYS 241 Introductory Electricity and Magnetism or PHYS 261H	4	For PHYS 241 or 261H: PHYS 141 or 161H; MATH 129 or appropriate Math Placement Level
PSIO 201 Human Anatomy and Physiology I	4	
Tier I General Education	3	
Semester Total		17
COURSE NUMBER AND TITLE	UNITS	COMMENTS

CURRENT PREREQUISITES FOR UPPER DIVISION COURSES CAN BE FOUND IN THE UA GENERAL CATALOG**ADVANCED STANDING IS REQUIRED FOR 3XX AND 4XX COURSES (SEE ADVISOR FOR REQUIREMENTS)****5TH SEMESTER**

BME 447 Sensors and Controls (Fall only)	3	
PSIO 202 Human Anatomy and Physiology II or ECOL 182 R/L Introductory Biology II and Laboratory	4	
BME 376 Biomedical Statistics (Fall only) or DATA 363 Introduction to Statistical Methods	3	
AME 301 Engineering Analysis or MATH 322 Mathematical Analysis for Engineers	3	
Tier I General Education	3	
Semester Total	16	

6TH SEMESTER

BME 330 Biomedical Instrumentation (Spring Only)	4	Prerequisite for ENGR 498A
BME 331 Introduction to Fluid Mechanics	3	
BME 480 Translational Biomedical Engineering (Spring only)	3	
BME Technical Elective ** – See major advisor for course approval or BME 310 Medical Device Design (Spring only)	3	
Tier II General Education*	3	
Semester Total	16	

7TH SEMESTER

ENGR 498A Cross-disciplinary Design (Fall Only) – Senior Status	3	
BME 497G Clinical Rotation (Fall Only)	1	
BME Technical Elective ** - See major advisor for course approval	3	
Technical Elective *** - See major advisor for course approval	3	
Technical Elective *** – See major advisor for course approval	3	
Semester Total	13	

8TH SEMESTER

ENGR 498B Cross-disciplinary Design (Spring Only) – Senior Status	3	
BME Technical Elective ** – See major advisor for course approval	3	
Technical Elective *** – See major advisor for course approval	3	
Technical Elective *** - See major advisor for course approval	3	
Tier II General Education *	3	
Semester Total	15	

*Tier I and II General Education Courses must meet University general education requirements. One course must be recognized by the university as meeting the Diversity Requirement.

** 9 or more units of BME.

*** Technical Electives: three units of Engineering Technical Electives and 9 units of Technical Electives in consultation with an advisor for a total of 21 units.