

B.S. in Biosystems Engineering

Catalog Year 2023–24

Below is the *advised sequence* of courses for this degree program on Main Campus as of 7/12/2022.

Official degree requirements and course prerequisites are in the University General Catalog; prerequisites are subject to change.

Course Number and Title	Units	Prerequisites/Enrollment Requirements
1st Semester		
MATH 122A/B or MATH 125 Calculus I with Applications	5/3	Appropriate Math Placement
*CHEM 151 Chemical Thinking 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
UNIV 101 Intro to the General Education Experience	1	
Semester Total		16/14
2nd Semester		
MATH 129 Calculus II	3	MATH 122B or 125 C or better
*CHEM 152 Chemical Thinking II or CHEM 162/164	4	CHEM 151 or 141/143 or 161/163 and Appropriate Math Placement
*PHYS 141 Introductory Mechanics or PHYS 161H	4	MATH 122B or 125 or Appropriate Math Placement
ENGL 102 or ENGL 108 First-Year Composition	3	ENGL 101 or ENGL 107
General Education: Exploring Perspectives (Artist)	3	
Semester Total		17
3rd Semester		
BE 201 Introduction to Biosystems Analytics, Technology, and Engineering	2	MATH 122B or 125
BE 284 Biosystems Thermal Engineering (Fall only)	3	MATH 129; PHYS 141
Biology I: MCB 181R/L Introductory Biology I OR PLS 240 Plant Bio	4	For MCB 181R/L: Appropriate Math Placement
CE 214 Statics	3	PHYS 141 or 161H; MATH 129
MATH 223 Vector Calculus	4	MATH 129 with C or better
Semester Total		16
4th Semester		
BE 205 Engineering Analytics and Problem Solving (Spring only)	3	
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 140 or 161H; MATH 129 or Appropriate Math Placement Level
Biology II: ECOL 182R/L Introductory Biology II or MIC 205 A/L General Microbiology or PSIO 201 Human Anatomy and Physiology I	4	ECOL182R/L & MIC 205A/L: Appropriate Math Placement
General Education: Exploring Perspectives (Humanist)	3	
Semester Total		17

*Each of the following foundational science courses satisfies the requirements for General Education: Exploring Perspectives (Natural Scientist): CHEM 151 or 152 or 161 or 162; or PHYS 141 or 161H.

Advanced Standing is required for 300- and 400-level engineering courses (see your academic advisor for details).

Course Number and Title	Units	Comments
5th Semester		
BE 221 Introduction to Computer Aided Design or BE 220 Engineering Graphics and Design with Auto Cad	3	
BE 310 Introductions to Biosystems Analytics	3	
CE 218 Mechanics of Fluids or AME 331 Introduction to Fluid Mechanics	3	
SIE 265 Engineering Management I	3	
General Education: Exploring Perspectives (Social Scientist)	3	
Semester Total	15	
6th Semester		
BE 423 Biosystems Analysis and Design	3	
BE 493 Internship (To be completed prior to taking BE 496A)	1	
BE Design Elective	3	Consult major advisor for course approval
Technical Elective	3	Consult major advisor for course approval
SIE 305 Introduction to Engineering Probability and Statistics or AREC 239 Introduction to Statistics and Data Analysis MATH 263 Introduction to Statistics and Biostatistics	3-4	
†General Education: Building Connections	3	
Semester Total	16/17	
7th Semester		
BE 496A Biosystems Careers and Professionalism Seminar	1	
BE 447 Sensors and Controls	3	
BE Design Elective	3	Consult major advisor for course approval
Technical Elective	3	Consult major advisor for course approval
ENGR 498A Interdisciplinary Capstone (Fall Only) or BE 498A	3	Senior Status
†General Education: Building Connections	3	
Semester Total	16	
8th Semester		
ENGR 498B Interdisciplinary Capstone (Spring Only) or BE 498B	3	Senior Status
**CE 301 or ENGL 308 or ENV5 408 Technical Writing	3	
Technical Elective	3	Consult major advisor for course approval
BE Design Elective	3	Consult major advisor for course approval
AME 324A Mechanical Behavior of Engineering Materials (Main)	3	SIE 330R (Yuma)
UNIV 301 General Education Portfolio	1	
Semester Total	16/17	

†Students should work closely with their academic advisor to select General Education: Building Connections courses; some course work in the major, such as some Technical Elective courses, may also fulfill General Education: Building Connections requirements.

**CE 301 will fulfill one of the General Education Building Connections courses; provisionally approval for Fall 2022.