

# 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
<b>1<sup>st</sup> Semester</b>		
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		<b>16/14</b>
<b>2<sup>nd</sup> Semester</b>		
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		<b>17</b>
<b>3<sup>rd</sup> Semester</b>		
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		<b>16</b>
<b>4<sup>th</sup> Semester</b>		
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		<b>17</b>

\*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
<b>5<sup>th</sup> Semester</b>		
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	<b>15</b>	
<b>6<sup>th</sup> Semester</b>		
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
BE 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	<b>16/17</b>	
<b>7<sup>th</sup> Semester</b>		
BE 496A Biosystems Careers and Professionalism Seminar	1	
BE 447 Sensors and Controls	3	
BE Design Elective	3	Consult major advisor for course approval
BE 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	<b>16</b>	
<b>8<sup>th</sup> Semester</b>		
ENGR 498B Interdisciplinary Capstone (Spring Only) or BE 498B	3	Senior Status
**CE 301 or ENGL 308 or ENVS 408 Technical Writing	3	
BE Technical Elective	3 - 4	Depends on selection of General Education course, 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	<b>16/17</b>	

†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 provisionally approved for Fall 2022; or ENGL 308 (UWGEC Approved) will fulfill GE Building Connections if taken as a technical writing course.