

Biosystems Engineering Department
B.S. in Biosystems Engineering
Biological & Pre Health-four-year plan

Below is the advised sequence of courses for this degree program and prerequisites as of AY 2018-2019

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

Course Number and Title	Units	Prerequisites
1ST SEMESTER		18/16
MATH 122A Functions for Calculus & MATH 122B 1st Sem. Calculus II or MATH 125 Calculus I	5/3	Appropriate Math Placement
CHEM 151 General Chemistry I	4	
ENGL 101 First-Year Composition	3	
ENGR 102 Introduction to Engineering or ENGR102A & ENGR102B	3	Concurrent enrollment or completion of MATH 122B or MATH 124 or MATH 125
Tier I General Education	3	
2ND SEMESTER		17
MATH 129 Calculus II	3	MATH 122A/MATH 122B or MATH 124 or MATH 125
CHEM 152 General Chemistry II	4	CHEM 151
PHYS 141 or PHYS 161H Introductory Mechanics	4	MATH 122A/MATH 122B or MATH 124 or MATH 125; Concurrent enrollment in MATH 129
ENGL 102 First-Year Composition	3	ENGL 101
Tier I General Education	3	
3RD SEMESTER		16
CE 214 Statics	3	PHYS 141 or PHYS 161H ; MATH 129 or MATH 250A
BE284 Biosystems Thermal Engineering	3	MATH 129; PHYS 141
BE201 Introduction to Biosystems Engineering	2	MATH 122A/MATH 122B or MATH 124 or MATH 125
MATH 223 Vector Calculus	4	MATH 129 or MATH 250A
MCB 181 R & L Introductory Biology I or PLS 240 Plant Bio	4	Appropriate Math Placement
4TH SEMESTER		17
BE205 Engineering Analytic Computer Skills	3	MATH 122A/MATH 122B or MATH 124 or MATH 125
MATH 254 Intro to Ordinary Differential Equations	3	MATH 129
PHYS 241 or PHYS 261H Introductory Electricity and Magnetism	4	PHYS 141
ECOL 182 R & L Introductory Biology II or MIC 205 A & L General Microbiology or PSIO 201 Human Anatomy and Physiology	4	
Tier 1 General Education	3	

Advanced Standing is required for 300 and 400 level courses (See advisor for requirements)

Course Number and Title	Units	Prerequisites
5TH SEMESTER		
CE 218 Mechanics of Fluids (see upper division note) or AME 331 Introduction to Fluid Mechanics	3	
SIE 265 Engineering Management I	3	
BE221 Introduction to Computer-Aided Design or BE220 Engineering Graphics and Design with Auto Cad	3	
Technical elective: CHEM 241 A & CHEM 243 A Organic Chemistry (see upper division note)	4	
SIE 305 Engineering Probability and Statistics	3	
6TH SEMESTER		
BE423 Biosystems Analysis and Design	3	
BE Design Elective	3	
Technical Elective	3	
ACL 422 or ENGL 308 Technical Writing	3	
Technical elective: CHEM 241 B & CHEM 243 B Organic Chemistry (see upper division note)	4	
7TH SEMESTER		
BE496A Seminar in Engineering Careers and Professionalism	1	
BE498A Senior Capstone: Engineering Design I	3	
BE447 Sensors and Controls	3	
BE Design Elective	3	
AME 324A Mechanical Behavior of Engineering Materials	3	
Tier I General Education (*upper division)	3	
8TH SEMESTER		
ENGR 498B Senior Capstone Engineering Design II	3	
Technical Elective	3	
BE 493 Internship	1	
BE Design Elective	3	
Tier II General Education (*upper division)	3	
Tier II General Education (*upper division)	3	

Total Units needed for Graduation 128: (Total Units with Total Units with Math 122A/B option = 128 or Math 125 option = 130)

Students should review their Student Academic Advisement Report (SAAR), with the Dept. Professional Advisor at least once a semester.

Elective courses: Students are required to receive approval, from the Dept. Professional Advisor or their assigned Faculty Mentor prior to enrolling in the Design/Technical elective courses. (See UA SAAR for list of acceptable courses)

- Engineering Design Electives: Students need to complete 9 units of upper division units. Design electives are BE courses that contain Engineering Design requirements.
- Technical Electives: Students need to complete 12 units of upper division courses.

Students are required to complete 42 Units of Upper Division to satisfy the major requirements. BE students who take up to 4 to 8 units of OCHEM, and 3 units CE 218, will not meet this requirement. To satisfy the UA Upper Division requirements, the Department recommends that students satisfy the requirement by completing 3 to 12 units of course work under the following areas: General Education (Tier I/II), and/or BEBS Design/Technical Electives.

- ENGR 102: Students who do not take ENGR 102, are required to take an Engineering course replacement, approved by the Professional Advisor.