BS BIORESOURCE AND AG ENGINEERING
2022-2026

This document displays only your course requirements at the time of publication of the catalog. You must use your Degree Progress Report to track all graduation requirements.

Note: No Major or Support courses may be selected as credit/no credit.

MAJOR COURSES		
BRAE 128	Careers in Bioresource & Agricultural Engr	2
BRAE 129	Laboratory Skills and Safety	1
BRAE 150	Design Graphics & CAD for Agricultural Engr	2
BRAE 152	3-D Solids Modeling	1
BRAE 216	Fundamentals of Electricity	4
BRAE 232	Agricultural Structures Planning	4
BRAE 234	Intro to Mechanical Systems in Agriculture	4
BRAE 236	Principles of Irrigation	4
BRAE 239	Engineering Surveying	4
BRAE 312	Hydraulics	4
BRAE 320	Principles of Bioresource Engineering	4
BRAE 328	Measurements and Computer Interfacing	4
BRAE 331	Irrigation Theory	3
BRAE 332	Env Controls for Agricultural Structures	4
BRAE 403	Agricultural Systems Engineering	4
BRAE 414	Irrigation Engineering	4
BRAE 421	Equipment Engineering I	4
BRAE 422	Equipment Engineering II	4
BRAE 428	Agricultural Robotics and Automation	4
BRAE 433	Agricultural Structures Design	4
BRAE 460	Senior Project Organization	1
BRAE 465	Senior Project Operation, Testing, & Safety	2
Approved Electives [1] **(see below for list)**		6-8
Total Major Units		**78-80**

SUPPORT COURSES		
BRAE 220 or MCRO 221	Introduction to Biological Systems (B2) [2] Microbiology	4
CE 204	Mechanics of Materials I	3
CE 207	Mechanics of Materials II	2
CHEM 124	Gen Chem for Physical Sci & Engr I (B1 & B3) [2]	4
CHEM 125	Gen Chem for Physical Sci & Engr II (Area B Elect) [2]	4
Select from the following: CSC 231 or CSC 232 or CSC 234	 Programming for Engineering Students Computer Program for Scientists & Engineers C and Unix	2-3
ECON 201 or ECON 222	Survey of Economics (Area D Elective) [2] Macroeconomics (Area D Elective) [2]	4
EE 321 & EE 361	Electronics **and** Electronics Laboratory	4
ENGL 147	Writing Arguments about STEM (A3) [2]	4
MATH 141	Calculus I (B4) [2]	4
MATH 142	Calculus II (B4) [2]	4
MATH 143	Calculus III (Area B Electives) [2]	4
MATH 241	Calculus IV	4
MATH 244	Linear Analysis I	4
ME 211	Engineering Statics	3
ME 212	Engineering Dynamics	3
PHYS 141	General Physics IA	4
PHYS 142	General Physics II	4
PHYS 143	General Physics III	4
STAT 312	Stat Methods for Engrs (Upper-Division B) [2]	4
Total Support Units		**73-74**

GENERAL EDUCATION		
Area A English Language Communication and Critical Thinking		
A1	Oral Communication	4
A2	Written Communication	4
A3	Critical Thinking (4 units in Support) [2]	0
Area B Scientific Inquiry and Quantitative Reasoning		
B1	Physical Science (4 units in Support) [2]	0
B2	Life Science (4 units in Support) [2]	0
B3	One lab taken with either a B1 or B2 course	
B4	Mathematics/Quantitative Reasoning (8 units in Support) [2]	0
Upper-Division B (4 units in Support) [2]		0
Area B Electives (8 units in Support) [2]		0
Area C Arts and Humanities		
Lower-division courses in Area C must come from three different subject prefixes.		
C1	Arts	4
C2	Humanities	4
Lower-Division C Elective - Select a course from either C1 or C2.		4
Upper-Division C		4
Area D Social Sciences		
D1	American Institutions (Title 5, Section 40404 Req)	4
Area D Elective - Select either a lower-division D2 or upper-division D course. (4 units in Support) [2]		0
Area E Lifelong Learning and Self-Development		
Lower-Division E		4
Area F Ethnic Studies		
F	Ethnic Studies	4
Total GE Units		**36**
FREE ELECTIVES		**0**
TOTAL DEGREE UNITS		**187-190**

FOOTNOTES

[1] Consultation with advisor is recommended prior to selecting Approved Electives; bear in mind your selections may impact pursuit of post-baccalaureate studies and/or goals.

[2] Required in Major or Support; also satisfies General Education (GE) requirement.

Approved Electives [1]	
Select from the following:	
BRAE 302	Servo Hydraulics
BRAE 333	Aquacultural Engineering
BRAE 335	Internal Combustion Engines
BRAE 345	Aerial Photogrammetry and Remote Sensing
BRAE 348	Energy for a Sustainable Society
BRAE/NR 349	Water for a Sustainable Society
BRAE 400	Special Problems (4 units maximum)
BRAE 405	Chemigation
BRAE/EE 434	Automotive Engr for a Sustainable Future
BRAE 435	Drainage
BRAE 436	Food & Agriculture Process Water Engr
BRAE 447	Advanced Surveying with GIS Applications
BRAE 448	Bioconversion
BRAE 450	Solar Photovoltaic System Engineering
BRAE 532	Water Wells and Pumps
BRAE 533	Irrigation Project Design
CHEM 312	Survey of Organic Chemistry
IME 319	Human Factors Engineering
MCRO 421	Food Microbiology
any upper-division CE course	
any upper-division EE course	
any upper-division ENVE course	
any upper-division ME course	