**BS BIORESOURCE AND AGRICULTURAL ENGINEERING**

- **60 units upper division**
- **2.0 GPA**

* = Required in Support; also satisfies GE

**Note:** No major or support courses may be taken as credit/no credit.

### MAJOR COURSES

- BRAE 128 Careers in Bioresource & Ag Engr. 2
- BRAE 129 Laboratory Skills and Safety 1
- BRAE 133 Engineering Design Graphics 1
- BRAE 151 CAD for Agricultural Engineering 1
- BRAE 152 3-D Solids Modeling 1
- BRAE 216 Fundamentals of Electricity 4
- BRAE 232 Agricultural Structures Planning 4
- BRAE 234 Intro Mechanical Systems Agric. 4
- BRAE 236 Principles of Irrigation 4
- BRAE 239 Engineering Surveying 4
- BRAE 312 Hydraulics 4
- BRAE 320 Principles of Bioresource Eng 4
- BRAE 328 Measurements/Computer Interfacing 4
- BRAE 331 Irrigation Theory 3
- BRAE 403 Agricultural Systems Engineering 4
- BRAE 414 Irrigation Engineering 4
- BRAE 421, 422 Equipment Engineering 3,4
- BRAE 433 Agricultural Structures Design 4
- BRAE 460 Senior Project Organization 1
- BRAE 461, 462 Senior Project I, II 2,2

Select 10 units from the following, with a minimum of 6 units upper division:

- BRAE 302, 335, 337, 345, 348, 400, 405, 427, 434, 435, 447, 448, 532, 533; *(5/15/15)*
- any upper division CE course;
- CHEM 312;
- any upper division ENVE course;
- FSN 204;
- IME 141, 142, 143, 144, 319;
- MATE 210, 215;
- MICRO 221, 421;
- any upper division ME course

**SUPPORT COURSES**

- **BIO 213 and ENGR/BRAE 213 or MICRO 221**
- Microbiology (B2)* 4
- CE 201 Mechanics of Materials (6) or CE 204 and CE 207 Mechanics of Materials I, II (3)(3) 6
- CHEM 124 General Chemistry for the Engineering Disciplines (B3/B4)* 4
- CHEM 125 General Chemistry for the Engineering Disciplines (Add’l Area B)* 4
- CSC 231/CSC 232/CSC 234 2/3

**ECON 201 Survey of Economics (D2)* or ECON 222 Macroeconomics (D2)* *(10/3/13)*** 4
- EE 321 Electronics and EE 361 Electronics Lab 3,1
- ENGL 149 Technical Writing for Engineers (A3)* 4
- MATH 141, 142 Calculus I, II (B1)* 4,4
- MATH 143 Calculus III (Add’l Area B)* 4
- MATH 241 Calculus IV 4
- MATH 244 Linear Analysis I 4
- ME 211 Engineering Statics 3
- ME 212 Engineering Dynamics 3
- ME 302 Thermodynamics 3
- PHYS 141 General Physics I 4
- PHYS 132, 133 General Physics 4,4
- SS 121 Introductory Soil Science 4
- STAT 312 Statistical Methods-Engr. (B6)* 4

**GENERAL EDUCATION (GE)**

- 72 units required, 36 of which are specified in Support.
- → See page 39 for complete GE course listing.
- → Minimum of 8 units required at the 300 level.

**Area A Communication (8 units)**

- A1 Expository Writing 4
- A2 Oral Communication 4
- A3 Reasoning, Argumentation, and Writing * 4 in Support 0

**Area B Science and Mathematics (no additional units are required)**

- B1 Mathematics/Statistics * 8 units in Support 0
- B2 Life Science * 4 units in Support 0
- B3 Physical Science * 4 units in Support 0
- B4 One lab taken with either a B2 or B3 course 0
- B5 (requirement for Liberal Arts students only) 0
- B5 (not required for Engineering students) 0
- B6 Upper-division Area B * 4 units in Support 0
- Additional Area B units* 8 units in Support 0

**Area C Arts and Humanities (16 units)**

- C1 Literature 4
- C2 Philosophy 4
- C3 Fine/Performing Arts 4
- C4 Upper-division elective 4

**Area D/E Society and the Individual (12 units)**

- D1 The American Experience (40404) 4
- D2 Political Economy * 4 units in Support 0
- D3 Comparative Social Institutions 4
- D4 Self Development (CSU Area E) 4

**FREE ELECTIVES** 0

**81-82**

---

1. Approved electives
2. Select 10 units from the following, with a minimum of 6 units upper division:
3. Any upper division CE course;
4. CHEM 312;
5. Any upper division ENVE course;
6. FSN 204;
7. IME 141, 142, 143, 144, 319;
8. MATE 210, 215;
9. MICRO 221, 421;
10. Any upper division ME course

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.

---

1. 4 unit maximum. *(5/15/15)*