

BIOENERGY CONCENTRATION

The bioenergy concentration is intended for students who are interested in pursuing careers in the quickly-expanding biofuels and bioenergy fields. The graduate will have the background and internship experience to enter directly into the bioenergy workforce. The bioenergy industry primarily is concerned with converting plant feedstocks into liquid fuels such as ethanol and biodiesel. The great resurgence of industry and public support for research and development in this field will require a modern and multidisciplinary workforce. The student will have the opportunity to explore branch disciplines of bioenergy such as agronomy, biotechnology, business and economics, chemistry, engineering or microbiology. In addition, the need for scholars and scientists with advanced degrees (MS and PhD) will also grow exponentially in bioenergy as billions of dollars of federal funds is channeled towards new bioenergy solutions. The BS degree will also prepare students for entrance into graduate programs.

Requirements for the Bachelor of Science in Plant Sciences • Plant Sciences Major • Bioenergy Concentration

	Hours	Credit
First Year		
Agriculture and Natural Resources 100	1	
Biology 111*, 112*	8	
⁴ Chemistry 120* and 130*	8	
English 101*, 102*	6	
Plant Sciences 250	3	
^{1,4} Quantitative Reasoning Electives*	6	
Second Year		
Agriculture and Natural Resources 290	3	
¹ Arts and Humanities Electives*	6	
Communication Studies 210* or 240*	3	
¹ Cultures and Civilizations Elective*	3	
² Economics 201*	4	
Environmental and Soil Sciences 210	4	
^{1,2} Social Sciences Elective*	3	
Technical Electives	3	
Third Year		
Agricultural Economics 212	3	
Biochemistry and Cellular and Molecular Biology 321	4	
¹ Cultures and Civilizations Elective*	3	
³ Agricultural and Extension Education 440* or English 295* or 360* or Journalism and Electronic Media 201*	3	
Physics 221*	4	
Plant Sciences 353, 435	5	
Technical Electives	9	
Third Year Summer		
Plant Sciences 492	3	
Fourth Year		
⁴ Specialty Area	9-11	
Environmental and Soil Sciences 334	3	
Plant Sciences 331, 465, 475, 497	9	
Technical Electives	3	
Unrestricted Electives	4-6	
	Total	124

* Meets University General Education Requirement.

¹ Choose from the University General Education lists. Selection should be made in conference with academic advisor.

² ECONOMICS 201 (4) Principles of Economics satisfies the University General Education-Social Science requirement and the major requirement for economics. If the student transfers ECON LD for 3 credits, it will satisfy the major requirement for economics but will not satisfy the General Education-Social Science requirement. In these cases, the student should take two courses from the approved General Education-Social Sciences list.

³ Meets the University General Education Requirement for Communicating through Writing (WC).

⁴ Choose one Specialty Area. Select Chemistry and Quantitative Reasoning Electives General Education courses based on prerequisites for courses in your Specialty Area.

Students must meet the University General Education Requirement for Communicating through Writing by selecting a course with a (WC) designation. This course may be in the major or from another discipline.

Specialty Areas

Specialty electives are grouped into specialty areas. Students must complete one specialty area, consisting of three courses (9-11 credit hours). Students wishing to expand on a specialty or complete more than one specialty area are welcome to do so, using Technical Electives for this purpose. A course may be counted in one specialty area only and may not be used to fulfill any other elective requirement. Check the Undergraduate Catalog for any prerequisites required for these courses.

Bioenergy Specialty Areas

AGRONOMY — Plant Sciences 457, 459; and select 6 h from Environmental and Soil Sciences 300-level and above BIOSYSTEMS ENGINEERING — Biosystems Engineering 231; Biosystems Engineering Technology 326, 432, 462; Engineering Fundamentals 100

BIOTECHNOLOGY — Biology 240; Plant Sciences 454 or Biochemistry and Cellular and Molecular Biology 404 (4); Biochemistry and Cellular and Molecular Biology 401 or Microbiology 210

BUSINESS — Accounting 200; Agricultural Economics 355; Business Administration 201, Marketing 300 or Agricultural Economics 470

CHEMISTRY — Chemistry 230 or 310; 350; 360; 369

CHEMICAL ENGINEERING — Engineering Fundamentals 151, 152; Chemical Engineering Fundamentals 200

FORESTRY AND WILDLIFE — 200-level and above from Forestry; 200-level and above from Forestry, Wildlife and Fisheries

MICROBIOLOGY — Microbiology 210 and above

TECHNICAL ELECTIVES

BIOENERGY CONCENTRATION

Biochemistry and Cellular and Molecular Biology; Biosystems Engineering; Biosystems Engineering Technology; Chemistry; Ecology and Evolutionary Biology; Management; Marketing; Microbiology; Physics; Spanish; Statistics; 200-level and above from Biology, Business Administration; 300-level and above from Agricultural Economics, Environmental and Soil Science, Forestry, Financial Management, Plant Sciences; Accounting 200; Engineering Fundamentals 100; English 360; Finance 301; Information Management 341, 342; Journalism/Electronic Media 450, 451, 456; Materials Science and Engineering 101, 201; Public Relations 270; Rural Sociology 380.