Biological and Agricultural Engineering

AGRICULTURAL ENGINEERING OPTION

Design and test equipment and processes that make agriculture safe and sustainable.

THIS MAJOR IS A GOOD FIT
IF YOU CAN SEE YOURSELF:

STUDYING math, physics, soils, and earth sciences

COMMUNICATING AND WORKING in teams that may include farmers, ranchers, plant scientists, and policymakers

USING CREATIVITY, scientific knowledge, and engineering expertise to design equipment and systems for agriculture

This major gives you the skills to design practical and efficient solutions to producing, storing, transporting, processing, and packaging agricultural products. Learn the fundamentals of designing agricultural machinery, equipment, and structures. Devise more efficient ways to use natural resources and reduce pollution. Develop ways to make biofuels from agricultural products, byproducts, and waste. Our faculty is currently researching many topics in agricultural engineering, including machine vision, precision irrigation systems, biological waste treatment, and biofuel production.

INSIDE THE CLASSROOM
Courses in math, soils, and fluid mechanics prepare you for more advanced courses in geographic information systems (GIS) and pesticides in the environment. Much of your education takes place in labs: Explore water quality and use in the water resources lab. Make discoveries about renewable energy in the biodiesel and biofuel labs. Design controls and switches in the power lab. Use computer-aided design technology (CAD) in the computing lab. Senior year, you will draw on everything you have learned to solve a real-world problem for an industry sponsor. Working in a team, you might transform used French fry cooking oil into biodiesel for the J. R. Simplot Company, or design a better conveyor belt gate for Key Technologies. Present your findings at the UI Engineering Expo.

OUTSIDE THE CLASSROOM

INTERN. Get practical experiences like these: SCAFCO GRAIN SYSTEMS Work on designs and cost estimates for farm storage structures . . . IDAHO DEPT. OF WATER RESOURCES Take weekly water samples, test nutrient levels, and monitor water usage . . . IDAHO FARM BUREAU FEDERATION Analyze current issues affecting the quality of life for farm and ranch families.

STUDY ABROAD. Deepen your understanding of your major—and the world—in countries like these: SWEDEN Help design a sustainable student housing project . . . MEXICO Tour chicken farms and a tequila manufacturing plant . . . INDIA Learn about 1,000-year-old farming practices on terraced hillsides.

DO RESEARCH. Make hands-on discoveries. Earn money working with faculty on grant-funded research. AGRABILITY PROJECT Explore new equipment and processes to help people with disabilities work in production agriculture . . . USDA RESEARCH GRANT Design a probe that uses UV light to detect the amount of biodiesel in a blend . . . DEPARTMENT OF ENERGY Discover why biodiesel causes less engine wear than regular diesel.

FASTFACT

A UI senior was a paid consultant in the building of a biodiesel plant.

GET INVOLVED. Network and have fun. AMERICAN SOCIETY OF AGRICULTURAL AND BIOLOGICAL ENGINEERS Join the student branch, meet business leaders and potential employers, and work with a team to build a ¼-scale tractor for the International Student Design Competition . . . TAU BETA PI Receive career assistance and leadership opportunities through this national honor society of engineers . . . SOCIETY OF WOMEN ENGINEERS Network and develop professionally.

CAREER OPPORTUNITIES
Our graduates are highly sought by manufacturers, agribusiness firms, government agencies, and nonprofit organizations, with starting salaries of up to $55,000.

Here are a few possibilities:

DESIGN ENGINEER. Design, fabricate, and test agricultural machinery components and equipment.

PROJECT ENGINEER. Plan and supervise the construction of structures for crop storage, animal shelter and loading, and animal and crop processing.

QUALITY CONTROL ENGINEER. Ensure equipment operates safely and efficiently for a company like John Deere.

CONSULTANT. Advise on issues such as pollution management and water use. Conduct educational programs that help farmers improve agricultural productivity.

COMBINE YOUR EDUCATION. A second language can open doors to international careers. Depending on your career goals, take courses in food science, business, and other types of engineering.

CONTINUE YOUR EDUCATION. Earn an advanced degree in engineering or food science.

FIND OUT MORE ABOUT THE UNIVERSITY OF IDAHO BIOLOGICAL AND AGRICULTURAL ENGINEERING MAJOR

WWW.UIDAHO.EDU/CALS/BAE

BIOLOGICAL AND AGRICULTURAL ENGINEERING AGRICULTURAL ENGINEERING OPTION

4-YEAR PLAN 2012-13

	FRESHMAN		SOPHOMORE		JUNIOR		SENIOR	
FALL	**BAE 142** Engineering for Living Systems	2	**BAE 242** Engineering Analysis & Design	2	**CE 211** Engineering Measurements	3	**BAE 352** Soil & Water Engineering	3
	Chem 111 Principles of Chemistry I	4	**Biol 115** Cells & the Evolution of Life	4	**Engr 320** Engineering Thermodynamics & Heat Transfer	3	**BAE 478** Engineering Design I	3
	Engl 102 College Writing & Rhetoric	3	**Engr 105** Engineering Graphics	2	**Engr 335** Engineering Fluid Mechanics	3	**BAE 491** Senior Seminar	1
	ISEM 101 Integrated Seminar	3	**Engr 210** Engineering Statics	3	**Engr 350** Engineering Mechanics of Materials	3	**CE 342** Theory of Structure	3
	Math 170 Analytic Geometry & Calculus I	4	**Math 275** Analytic Geometry & Calculus III	3	**ISEM 301** Integrated Seminar	3	**Stat 301** Probability & Statistics	3
			Phys 212 Engineering Physics II	3	**Elective** Elective—Humanities *or* Social Science	3	**Elective** Elective—Humanities *or* Social Science	3
	TOTAL	**16**	**TOTAL**	**17**	**TOTAL**	**18**	**TOTAL**	**16**
SPRING	**Chem 112** Principles of Chemistry II	5	**Comm 101** Fundamentals of Public Speaking	2	****BAE 441** Instrumentation & Measurements	3	**BAE 355** Fundamentals of Hydrologic Engineering	3
	Math 175 Analytic Geometry & Calculus II	4	**Engr 220** Engineering Dynamics	3	**BAE 461** Bioprocess Engineering	3	**BAE 459** Irrigation System Design	3
	Phys 211/211L Engineering Physics I/Lab	4	**Engr 240** Intro. to Electrical Circuits	3	**Engr 360** Engineering Economy	2	***BAE 462** Electric Power & Controls	3
	Elective Elective—Humanities *or* Social Science	3	**Math 310** Ordinary Differential Equations	3	**Electives** Elective—Technical	7	**BAE 479** Engineering Design II	3
			Soil 205 Soil Ecosystem	3			**Elective** Elective—Technical	3
			Elective Elective—Humanities *or* Social Science	3				
	TOTAL	**16**	**TOTAL**	**17**	**TOTAL**	**15**	**TOTAL**	**15**

Total for degree = 128 credits. Course offerings may change from year to year. Always check the current course catalog.

*Offered in spring of odd years

**Offered in spring of even years

TO LEARN MORE
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University of Idaho
College of Agricultural and Life Sciences