Sustainable Crop and Landscape Systems

PLANT BIOTECHNOLOGY EMPHASIS

Improve plants for food, fuel, fiber and landscapes through cutting-edge molecular technology.

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

CONDUCTING RESEARCH in greenhouses, laboratories, and fields to advance crops important to Idaho and the United States

WORKING TO IMPROVE FIELD CROPS such as wheat, corn, barley, rapeseed, potatoes, and beans or horticultural crops such as tomatoes, citrus fruits, roses, and orchids

PURSUING A CAREER in plant molecular biology, plant molecular genetics, plant breeding, or plant genetics

You will study how differences at the molecular level can be used to improve plant growth and development. Our professors conduct integrated crop research that combines the latest molecular techniques with classic methods of crop improvement. Their research projects include developing new cultivars of wheat, mustard, canola, potatoes, tomatoes, rice, and beans; genetically transforming agronomic and horticultural crops; studying the molecular aspects of insect and disease resistance of plants; and improving crops for use as biofuels.

INSIDE THE CLASSROOM
Much of your work will be hands-on in greenhouses and laboratories. Gain an understanding of how plant genes are replicated, expressed, and controlled. Learn how plants grow and respond to environmental stress, diseases, and insects. Study gene expression and practice manipulating plant genes to alter responses at the molecular level to pathogens, insects, and the environment. Develop and use DNA molecular markers to determine disease resistance and identify superior crop plants.

OUTSIDE THE CLASSROOM

INTERN. Get practical experiences like these: MICROPLANT NURSERIES, INC. Regenerate plants from cells and tissues . . . TWYFORD PLANT LABORATORIES Identify disease-resistant plants using molecular techniques . . . USDA AGRICULTURAL RESEARCH SERVICE Identify and isolate genes for modification of crop plants such as wheat, barley, sugarbeets, and potatoes.

STUDY ABROAD. Deepen your understanding of your major—and the world—and see the potential impact of plant biotechnology in countries like these: TAIWAN Study orchid production . . . MEXICO Explore mango and coffee production . . . INDIA Compare modern cropping systems with century-old farming practices.

DO RESEARCH. Participate in one of many departmental research projects. BREEDING Help develop new cultivars of wheat, canola, mustard, or potatoes . . . BIOPESTICIDES Explore how crushed mustard seeds are a natural deterrent for weeds, insects, and nematodes . . . ENHANCED DISEASE RESISTANCE Investigate plant resistance signaling to generate healthier crops. Paid positions are available.

GET INVOLVED. PLANT AND SOIL SCIENCE CLUB Grow plants for sales; travel to Portland to visit the Japanese Gardens and the Wheat Marketing Board . . . SOIL STEWARDS Work at the on-campus organic farm . . . MICROBIOLOGY, MOLECULAR BIOLOGY AND BIOCHEMISTRY CLUB Interact with students who share your interest in biotechnology . . . AGRICULTURAL STUDENT AFFAIRS COUNCIL Become a student leader.

FASTFACT

In the plant tissue culture course you will regenerate plants from leaves, stems, roots, and even pollen.

CAREER OPPORTUNITIES
Almost all of our graduates receive job offers upon graduation with starting salaries of up to $45,000. They work in business, for government, and for nonprofit organizations.

Here are a few possibilities:

PLANT PROPAGATION SPECIALIST. Produce new plants with grafting, budding, cutting, and tissue culture.

PLANT BREEDING SUPPORT SCIENTIST. Participate in the development of new crop cultivars and the incorporation and testing of new genes for resistance to diseases, insects, and herbicides.

RESEARCH TECHNICIAN. Make discoveries in a laboratory or greenhouse that contribute to innovations in plant genetics and plant development.

LABORATORY TECHNICIAN. Work in public and private plant disease diagnostic laboratories using molecular techniques to solve problems in the field.

COMBINE YOUR EDUCATION. A second language can open doors to international careers. Take additional courses in business, agribusiness, communications, or international affairs.

CONTINUE YOUR EDUCATION. Earn an advanced degree in plant science, agronomy, horticulture, plant molecular biology, plant genetics, plant breeding, or plant pathology.

FIND OUT MORE ABOUT THE SUSTAINABLE CROP AND LANDSCAPE SYSTEMS MAJOR

WWW.CALS.UIDAHO.EDU/PSES

SUSTAINABLE CROP AND LANDSCAPE SYSTEMS PLANT BIOTECHNOLOGY EMPHASIS

4-YEAR PLAN 2012-12

	FRESHMAN	SOPHOMORE	JUNIOR	SENIOR
FALL	**Chem 101** 4 **Intro. to Chemistry I** *or* **Chem 111** Principles of Chemistry I **Comm 101** 2 Fundamentals of Public Speaking **Engl 101** 3 Intro. to College Writing **ISEM 101** 3 Integrated Seminar **PlSc 102** 3 Science of Plants in Agriculture **TOTAL 15**	**Chem 275/276** 4 Carbon Compounds/Lab **Geog 385** 3 GIS Primer **or ASM 305** GPS & Precision Agriculture **Soil 205/206** 4 The Soil Ecosystem/Lab **Elective** 3 Elective—Humanities/Social Science **Elective** 3 Elective **TOTAL 17**	**Engl 313** 3 Business Writing **or Engl 317** Technical Writing **Ent 322** 4 Economic Entomology **MMBB 300** 3 Survey of Biochemistry **PlSc 338** 3 Weed Control **Elective** 3 Elective—Specialization **TOTAL 16**	**MMBB 488** 3 Genetic Engineering *or* **Biol 444** Genomics **PlSc 398** 3 Internship *or* **PlSc 499** Directed Study **PlSc 400** 1 Seminar **PlSc 415** 3 Plant Pathology **Elective** 3 Elective—Plant Science/Plant Biotechnology **Elective** 3 Elective—Specialization **TOTAL 16**
SPRING	**Biol 115** 4 Cells & the Evolution of Life **Engl 102** 3 College Writing & Rhetoric **Math 143** 3-4 Pre-calculus Algebra & Analytic Geometry *or* **Math 160** Survey of Calculus **MMBB154/155** 4 Intro. Microbiology/Lab **Elective** 3 Elective—Humanities/Social Science *or* **Elective** Elective—Diversity **TOTAL 17-18**	**PlSc 201** 3 Principles of Horticulture **PlSc 205** 4 General Botany *or* **Biol 213** Principles of Biological Structure & Function **Stat 251** 3 Statistical Methods **Elective** 3 Elective—Humanities/Social Science **Elective** 3 Elective—Plant Science/Plant Biotechnology **TOTAL 16**	**AgEd 406** 3 Exploring International Agriculture **Gene 314** 3 General Genetics **ISEM** 1 Great Issues Seminar **PlSc 438** 3 Pesticides in the Environment **Elective** 3 Elective—Plant Science/Plant Biotechnology **Elective** 3 Elective—Humanities/Social Science **TOTAL 16**	**PlSc 401** 3 Plant Growth & Development **PlSc 433** 3 Plant Tissue Culture Techniques **PlSc 446** 3 Plant Breeding **Elective** 3 Elective—Plant Science/Plant Biotechnology **Elective** 3 Elective—Specialization **TOTAL 15**

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

TO LEARN MORE
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