Coursework

Required Course (12-14 sh)

- AGRN 176 Principles of Crop Science (3) or
- HORT 180 Introductory Horticulture (3) or
- BOT 200 Introduction to Plant Biology (4)
- AGRI 376 Applied Genetics in Agriculture (3) or
- BIOL 340 Genetics and Evolutionary Biology (4)
- AGRN 472 Principles of Plant Breeding (3)
- AGRN 476 Crop Biotechnology (3)

Two of the following directed electives (6-8 sh)

- AGRN 374 Diseases of Economic Plants (3)
- AGRN 378 Soil Fertility and Plant Nutrition (3)
- AGRN 470 Applied Entomology (3)
- BOT 320 Plant Anatomy (3)
- BOT 329 Plant Structure & Function (3)
- BOT 430 Plant Physiology (3)
- BOT 461 Plant Pathology (3)
- BOT 462 Diseases of Trees and Shrubs (3)
- BOT 481 Experimental Plant Biology (3)
- HORT 480 Plant Propagation (3)
- CHEM 421 Biochemistry (4)
- STAT 171 General Elementary Statistics (3)
- BIOL 330 Cell and Molecular Biology (4)

Total hours needed for the minor: 18-22 sh

For More Information

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What Is Plant Breeding?

Plant breeding is the art and science of changing the genetics of plants for the benefit of humankind. Plant breeding can be accomplished through many different techniques, ranging from simply selecting plants with desirable characteristics for propagation to more complex molecular techniques and genetic engineering.

Plant breeding has been practiced for thousands of years, since near the beginning of human civilization. It is now practiced worldwide by individuals such as gardeners and farmers or by professional plant breeders employed by organizations such as government institutions, universities, crop-specific industry associations, and research centers.

International development agencies believe that breeding new crops is important for ensuring food security by developing new varieties that are higher-yielding, resistant to pests and diseases, drought-resistant, or adapted to varying regional environments and growing conditions.

Plant Breeding Education at Western Illinois University

Western Illinois University School of Agriculture is dedicated to finding and encouraging talented students to pursue this rigorous scientific career. Plant breeding covers extremely diverse areas of interest and is well suited for students interested in applied research, computers, statistics, entomology, plant pathology, plant physiology, plant propagation, organic chemistry, biochemistry, soils, plant anatomy, plant taxonomy, and advanced biotechnology techniques.

Internship Opportunities in Plant Breeding

Western Illinois University is ideally located in the heart of the Midwest, in close proximity to many private breeding programs such as Pioneer and Monsanto and public breeding programs at the University of Illinois, Iowa State University, and the University of Wisconsin. Internships are typically available with several regional collaborators, including Pioneer Hi-Bred International; Monsanto; USDA National Center for Agricultural Utilization Research, New Crops and Products Unit in Peoria, Illinois; USDA North Central Region Plant Introduction Station in Ames, Iowa; and the University of Illinois. Western Illinois University has served as a feeder institution to many of the surrounding private companies and land-grant graduate schools.

Undergraduate Research Opportunities in Plant Breeding

An essential element of any plant breeding education curriculum is the exposure of students to actual plant breeding programs. Western Illinois University is home to the Alternative Crops Research Program, which is aimed specifically at developing new and alternative crops for the Midwest region. During the academic semester, competitive research grants will be offered to students interested in conducting independent and honors research studies with Western faculty. Awards will be given to projects directly related to plant breeding and associated disciplines that support plant breeding. Award funding will assist students in conducting research and provide opportunities for travel to present findings at regional and national scientific conferences.