



Twin Cities Campus

Applied Plant Sciences Minor

Agronomy & Plant Genetics, Horticultural Science

College of Food, Agricultural and Natural Resource Sciences

Link to a [list of faculty](#) for this program.

Contact Information:

Department of Agronomy and Plant Genetics, 411 Borlaug Hall, 1991 Upper Buford Circle, St. Paul, MN 55108-6026 (612-625-4742; fax: 612-625-1268)

Email: apsc@umn.edu

Website: <http://www.appliedplantsciences.umn.edu>

- Program Type: Graduate minor related to major
- Requirements for this program are current for Fall 2016
- Length of program in credits (Masters): 12
- Length of program in credits (Doctorate): 12
- This program does not require summer semesters for timely completion.

Along with the program-specific requirements listed below, please read the [General Information](#) section of the catalog website for requirements that apply to all major fields.

The minor in applied plant sciences provides students in other fields an opportunity to gain knowledge and expertise in plant sciences at the molecular, organismal and community levels with applications to sustainable production of horticultural and agronomic crops. Applied Plant Sciences is an interdisciplinary program for educating students to become professional scientists well-grounded in the applied disciplines of agronomy/agroecology, horticulture, and plant breeding/molecular genetics. Graduates of the program are able to provide innovative leadership and contribute to problem solving within their disciplines in the public or private sector and within society at large. The program develops the quantitative and qualitative research skills necessary to conduct high quality research and scholarship. Students choose from among four specialization tracks: agronomy/agroecology, applied plant sciences, horticulture, or plant breeding/ molecular genetics. Students gain broad familiarity with all of the disciplines within the program and gain in-depth knowledge within their area of expertise. The program's graduate faculty is drawn primarily from the Departments of Agronomy and Plant Genetics and Horticultural Science; but also from the Departments of Plant Biology; Plant Pathology; Soil, Water, and Climate; Ecology, Evolution and Behavior; and Fisheries, Wildlife and Conservation Biology. The faculty embrace the University of Minnesota's position that promoting and supporting diversity among the student body is central to our academic mission.

Program Delivery

This program is available:

- via classroom (the majority of instruction is face-to-face)

Prerequisites for Admission

The preferred undergraduate GPA for admittance to the program is 3.00.

Other requirements to be completed before admission:

Students entering the program should have a foundation in the physical and biological sciences, preferably with some emphasis in plant science. A minimum of 10 credits of math and physics, 12 credits of chemistry and biochemistry, and 15 credits of biological and/or agricultural sciences are recommended for admission. In addition, students should have completed a BS or BA degree in agriculture, biology, or other related life science. Students with a BS or BA degree outside these areas may be admitted with the requirement that they take the prerequisite courses noted above at the undergraduate level in addition to their graduate coursework.

For an online application or for more information about graduate education admissions, see the [General Information](#) section of the catalog website.

Program Requirements

Use of 4xxx courses toward program requirements is permitted under certain conditions with adviser approval.

Coursework is determined in consultation with the applied plant sciences director of graduate studies and may include but is not limited to the recommended courses listed below.

Recommended Courses



Select from these recommended courses.

Take 12 or more credit(s) from the following:

- AGRO 4401 *{Inactive}*(4.0 cr)
- AGRO 4505 - Biology, Ecology, and Management of Invasive Plants (3.0 cr)
- AGRO 4605 - Strategies for Agricultural Production and Management (3.0 cr)
- AGRO 4888 - Issues in Sustainable Agriculture (2.0 cr)
- AGRO 5311 - Research Methods in Crop Improvement and Production (1.0 cr)
- AGRO 5321 - Ecology of Agricultural Systems (3.0 cr)
- AGRO 5431 - Applied Plant Genomics and Bioinformatics (3.0 cr)
- AGRO 5999 - Special Topics: Workshop in Agronomy (1.0 - 6.0 cr)
- AGRO 8201 *{Inactive}*(3.0 cr)
- AGRO 8202 - Breeding for Quantitative Traits in Plants (3.0 cr)
- AGRO 8241 - Chromosomal and Molecular Genetics of Plant Improvement (3.0 cr)
- AGRO 8280 *{Inactive}*(1.0 - 3.0 cr)
- EEB 5042 - Quantitative Genetics (3.0 cr)
- GCD 4034 - Molecular Genetics and Genomics (3.0 cr)
- GCD 8131 - Advanced Molecular Genetics and Genomics (3.0 cr)
- HORT 4062 - Turfgrass Weed and Disease Science (3.0 cr)
- HORT 4063 - Turfgrass Science (3.0 cr)
- HORT 4071W - Applications of Biotechnology to Plant Improvement [WI] (3.0 cr)
- HORT 4141W - Scheduling Crops for Protected Environments [WI] (4.0 cr)
- HORT 4461 - Horticultural Marketing (3.0 cr)
- HORT 4850 *{Inactive}*(3.0 cr)
- HORT 5007 - Advanced Plant Propagation (3.0 cr)
- HORT 5011 *{Inactive}*(3.0 cr)
- HORT 5012 *{Inactive}*(3.0 cr)
- HORT 5023 - Public Garden Management (2.0 cr)
- HORT 5031 *{Inactive}*(3.0 cr)
- HORT 5032 *{Inactive}*(3.0 cr)
- HORT 5051 *{Inactive}*(4.0 cr)
- HORT 5058 *{Inactive}*(3.0 cr)
- HORT 5059 *{Inactive}*(1.0 cr)
- HORT 5061 *{Inactive}*(2.0 cr)
- HORT 5071 - Ecological Restoration (4.0 cr)
- HORT 5131 - Student Organic Farm Planning, Growing, and Marketing (3.0 cr)
- HORT 8044 - Manipulation of Plant Growth and Reproduction (2.0 cr)
- HORT 8201 *{Inactive}*(3.0 cr)
- HORT 8280 - Current Topics in Applied Plant Sciences (1.0 cr)
- PMB 5301 *{Inactive}*(3.0 cr)
- PMB 5412 - Plant Physiology and Development (3.0 cr)
- PMB 5516 *{Inactive}*(3.0 cr)
- PMB 5601 - Topics in Plant Biochemistry (3.0 cr)
- PLPA 5103 - Plant-Microbe Interactions (3.0 cr)
- PLPA 5202 - Field Plant Pathology (2.0 cr)
- PLPA 5203 - Introduction to Fungal Biology (3.0 cr)
- PLPA 5301 - Large Scale Omic Data in Plant Biology (3.0 cr)
- PLPA 5444 - Ecology, Epidemiology, and Evolutionary Biology of Plant-Microbe Interactions (3.0 cr)
- PLPA 5480 - Principles of Plant Pathology (3.0 cr)
- PLPA 5660 - Plant Disease Resistance and Applications (3.0 cr)
- PLPA 8103 - Plant-Microbe Interactions (3.0 cr)
- PLPA 8104 - Plant Virology (2.0 cr)
- PLPA 8105 - Plant Bacteriology (3.0 cr)
- SAGR 8010 - Colloquium in Sustainable Agriculture (2.0 cr)

Program Sub-plans

Students are required to complete one of the following sub-plans.

Students may not complete the program with more than one sub-plan.

Masters

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Doctoral

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