

Applied Plant Sciences-Agroecology/Agronomy Track

Graduate school guidelines: M.S. Plan A degree: 14 credits in the major that should include the “core” courses listed below; 6 credits in related fields or a minor; 10 thesis credits are required.

Required “core” courses* counted toward the required 14 major credits:

*STAT 5021; Statistical Analysis (or equivalent) or (4 cr)
 AGRO 5121 Applied Experimental Design (4 cr) or
 STAT 5303: Experimental design (4 cr)

*AGRO 5310: Orientation to MN Crop Production and Research (1 cr)

*AGRO/HORT 8270: Seminar (1 cr)

*Two agroecology/agronomy courses:

- AGRO 4005 Applied Crop Physiol & Develop. (4 cr)
- AGRO 5021 Introduction to Plant Breeding (3 cr)
- AGRO 4505 Integrated Weed management (3 cr)
- SAGR 8010 Sustainable Agriculture Colloquium (2 cr)
- AGRO 5321 Ecology of Agric. Systems
- AGRO 8605 Advanced Mgt Agroecosystems (2 cr)
- AGRO 8305 Physiol Ecology of Plants in Natural & (4 cr)
 Managed Ecosystems
- NRES 5021 Plant Resource Mgt & Enviro. (3 cr)

*A course in plant biology such as:

- PBIO 5414 Plant Cell and Mol. Biology (3 cr)
- PIPA 5103/8103 Physiol. & Mol. Plant-Microbe Interact (3 cr)
- PBIO 5412 Plant Physiology (3 cr)
- PBIO 5416 Plant Morphology, Dev., and Evol. (4 cr)
- Biol 5124 Plant Physiol. Ecology (4 cr)
- Hort 8044 Manipulation Plant Growth & Repro. (2 cr)

Ecology courses such as the following can be counted for the 6 credits in related fields or a minor:

- Biol 5407 Ecology (3 cr)
- EEB 5051 Analysis of Populations (3 cr)
- EEB 5053 Ecology: Theory and Concepts (4 cr)
- EEB 5122 Plant Interactions Animals and Microbes (4 cr)
- EEB 4609 Ecosystem Ecology (3 cr)
- EEB 4014 Ecology of Vegetation (3 cr)
- Hort 5071 Restoration and Reclamation Ecology (3 cr)

Courses listed within the agroecology/agronomy, plant biology, and ecology groups are listed to provide a guide to student and faculty. Upon agreement of the advisor, advisory committee, and DGS; other courses can be substituted.

Ph.D. degree: A minimum of 30 credits in the major that should include the * courses listed below, and additional courses from the biology and agroecology/ agronomy course listing; a minimum of 12 credits in a related field or minor (see ecology courses); and 24 doctoral thesis credits after passing the oral prelim exam.

- *STAT 5021; Statistical Analysis (or equivalent) (4 cr)
- *AGRO 5121 Applied Experimental Design or
STAT 5303: Experimental design (4 cr) (4 cr)
- *AGRO 5310: Orientation to MN Crop Production and Research (1 cr)
- *AGRO/HORT 8270: Seminar (2 required) (1 cr)
- *AGRO/HORT 8280: Current Topics in Applied Plant Sciences (2 cr)
- *AGRO/HORT 8005: Supervised Teaching Experience (2 cr)

*Two Agroecology/agronomy courses:

- AGRO 4005 Applied Crop Physiol & Develop. (4 cr)
- AGRO 5021 Introduction to Plant Breeding (3 cr)
- AGRO 4505 Integrated Weed management (3 cr) (3 cr)
- SAGR 8010 Sustainable Agriculture Colloquium (2 cr)
- AGRO 5321 Ecology of Agric. Systems
- AGRO 8605 Advanced Mgt. Agroecosystems (2 cr)
- AGRO 8305 Physiol Ecology of Plants in Natural &
Managed Ecosystems (4 cr)
- NRES 5021 Plant Resource Mgt & Enviro (3 cr)

*A course in plant biology such as:

- PBIO 5414 Plant Cell and Mol. Biology (3 cr)
- PIPA 5103/8103 Physiol. & Mol. Plant-Microbe Interact (3 cr)
- PBIO 5412 Plant Physiology (3 cr)
- PBIO 5416 Plant Morphology, Dev., and Evol. (4 cr)
- Biol 5124 Plant Physiol Ecology (4 cr)
- Hort 8044 Manipulation Plant Growth & Repro. (2 cr)

Ecology courses such as the following can be counted toward the 12 credits in related fields or a minor:

- Biol 5407 Ecology (3 cr)
- EEB 5051 Analysis of Populations (3 cr)
- EEB 5053 Ecology: Theory and Concepts (4 cr)
- EEB 5122 Plant Interactions Animals and Microbes (4 cr)
- EEB 4609 Ecosystem Ecology (3 cr)
- EEB 4014 Ecology of Vegetation (3 cr)
- Hort 5071 Restoration and reclamation ecology (3 cr)