

AGRICULTURAL AND ENVIRONMENTAL PLANT SCIENCE

Dual-Titles

Dual-title M.S. and Ph.D. in Agricultural and Environmental Plant Science and International Agriculture and Development

Requirements listed here are in addition to requirements listed in GCAC-208 Dual-Title Graduate Degree Programs (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-200/gcac-208-dual-titles/>).

Graduate students with research and educational interests in international agriculture may apply to the dual-title degree program in Agricultural and Environmental Plant Sciences and International Agriculture and Development. The goal of the dual-title degree is to enable graduate students from Agricultural and Environmental Plant Sciences to acquire the knowledge and skills of their primary area of specialization, while at the same time gaining the perspective and methods needed for work in the international agriculture. Graduate study in this program seeks to prepare students to assume leadership roles in science, engineering, outreach, and project management anywhere in the world. Students acquire a broad perspective on how to apply their research findings in the context of the broader international community. Thus, the dual-title will allow students to master their field of specialization from an international perspective so that they can effectively engage in agricultural development activities within various countries and regions.

Admission Requirements

Students must apply and be admitted to the graduate program in AEPS and the Fox Graduate School before they can apply for admission to the dual-title degree program. After admission to their primary program, students must apply for admission to and meet the admissions requirements of the INTAD dual-title program. Refer to the Admission Requirements tab on the INTAD Bulletin page (<http://bulletins.psu.edu/graduate/programs/majors/international-agriculture-development/>). Doctoral students must be admitted into the dual-title degree program in INTAD prior to taking the qualifying examination in their primary graduate program.

Degree Requirements for the Dual-Title M.S.

To qualify for the dual-title degree, students must satisfy the degree requirements for the M.S. degree in AEPS, listed on the Degree Requirements tab. In addition, students must complete the degree requirements for the dual-title in INTAD, listed on the INTAD (<http://bulletins.psu.edu/graduate/programs/W/GRAD%20WMNST>) Bulletin page. (<http://bulletins.psu.edu/graduate/programs/W/GRAD%20WMNST>) Up to 6 credits of INTAD approved courses can be applied to fulfilling AEPS program requirements. Final course selection must be approved by the student's advisory committee.

Degree Requirements for the Dual-Title Ph.D.

To qualify for the dual-title degree, students must satisfy the degree requirements for the Ph.D. degree, listed on the Degree Requirements tab. In addition, students must complete the degree requirements for the dual-title Ph.D. in INTAD, listed on the INTAD Bulletin page (<http://bulletins.psu.edu/graduate/programs/majors/international-agriculture-development/>).

bulletins.psu.edu/graduate/programs/majors/international-agriculture-development/). Up to 6 credits of INTAD approved courses can be applied to fulfilling AEPS program requirements. Final course selection must be approved by the student's advisory committee.

The qualifying examination committee for the dual-title Ph.D. degree will be composed of Graduate Faculty from AEPS and must include at least one Graduate Faculty member from the INTAD program. Faculty members who hold appointments in both programs' Graduate Faculty may serve in a combined role. There will be a single qualifying examination, containing elements of both AEPS and INTAD. Dual-title graduate degree students may require an additional semester to fulfill requirements for both areas of study and, therefore, the qualifying examination may be delayed one semester beyond the normal period allowable.

In addition to the general Graduate Council requirements for Ph.D. committees (<http://gradschool.psu.edu/graduate-education-policies/gcac/gcac-600/phd-dissertation-committee-formation/>), the Ph.D. committee of an AEPS and INTAD dual-title Ph.D. student must include at least one member of the INTAD Graduate Faculty. Faculty members who hold appointments in both programs' Graduate Faculty may service in a combined role. If the chair of the Ph.D. committee is not also a member of the Graduate Faculty in INTAD, the member of the committee representing INTAD must be appointed as co-chair. The INTAD representative on the student's Ph.D. committee will develop questions for and participate in the evaluation of the comprehensive examination.

Students in the dual-title program are required to write and orally defend a dissertation on a topic that is approved in advance by their Ph.D. committee and reflects their original research and education in AEPS and INTAD. Upon completion of the doctoral dissertation, the candidate must pass a final oral examination (the dissertation defense) to earn the Ph.D. degree. The dissertation must be accepted by the Ph.D. committee, the head of the graduate program, and the Graduate School.

DUAL-TITLE PH.D. IN Agricultural and Environmental Plant Sciences AND Microbiome Sciences

Requirements listed here are in addition to requirements listed in GCAC-208 Dual-Title Graduate Degree Programs (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-200/gcac-208-dual-titles/>).

Doctoral students with research and educational experiences in AEPS may apply to the AEPS-Microbiome Sciences Dual-Title Doctoral Degree Program. The goal of the dual-title Ph.D. degree in AEPS and Microbiome Sciences is to enable AEPS graduate students to acquire the knowledge and skills of their major area of specialization in AEPS, while at the same time gaining expertise and skills in Microbiome Sciences. Graduate study in this program seeks to provide students with the intellectual foundation for integrated and mechanistic understanding of interactions between plant hosts, microbes, and environmental systems. Interdisciplinary training that includes Microbiome Sciences will prepare students for positions in academia, government, non-profit organizations, and the private sector, including agricultural and environmental sciences, energy and bioenergy industries, and the integrated study of the sustainability of biological systems.

Admission Requirements

For admission to the dual-title doctoral degree in Microbiome Sciences, a student must first apply and be admitted to the AEPS Ph.D. graduate program and the Fox Graduate School, preferably but not necessarily discussing the dual-title interest beforehand with a major adviser

who has been appointed to the Microbiome Sciences program. After admission to their primary program, students must apply for admission to and meet the admissions requirements of the Microbiome Sciences dual-title program. Refer to the Admission Requirements section of the Microbiome Sciences Bulletin page (<https://bulletins.psu.edu/graduate/programs/majors/microbiome-sciences/>). Doctoral students should enroll in a dual-title graduate degree program early in their training, and no later than the end of the fourth semester (not counting summer semesters) of entry into the graduate major program.

Degree Requirements

To qualify for the dual-title degree, students must satisfy the AEPS Ph.D. degree requirements. In addition, students pursuing the dual-title Ph.D. in AEPS and Microbiome Sciences must complete the degree requirements for the dual-title Microbiome Sciences Ph.D., listed on the Microbiome Sciences Bulletin page (<https://bulletins.psu.edu/graduate/programs/majors/microbiome-sciences/>). Students are required to have two advisers from separate disciplines: one individual serving as a primary adviser in their major degree program and a secondary adviser in an area within a field covered by the dual-title program who is a member of the Microbiome Sciences Graduate Faculty. The major program adviser normally will also be a member of the Microbiome Sciences Graduate Faculty. The two faculty advisers can represent different academic programs, but this is not required, as faculty from a scientifically diverse department could represent very different areas of expertise.

The qualifying examination for AEPS will satisfy the qualifying examination requirement for the dual-title degree program in Microbiome Sciences.

In addition to the general Graduate Council requirements for Ph.D. committees (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-600/gcac-602-phd-committee-formation/>), the Ph.D. committee of a AEPS and Microbiome Sciences dual-title doctoral degree student must include at least one member of the Microbiome Sciences Graduate Faculty. Faculty members who hold appointments in both programs' Graduate Faculty may serve in a combined role. If the chair of the Ph.D. committee is not also a member of the Graduate Faculty in Microbiome Sciences, the member of the committee representing Microbiome Sciences must be appointed as co-chair. The Microbiome Sciences representative on the student's Ph.D. committee will develop questions for and participate in the evaluation of the comprehensive examination.

Students enrolled in the dual-title program are required to write and orally defend a dissertation on a topic that reflect their original research and education in AEPS and Microbiome Sciences. Upon completion of the doctoral dissertation, the candidate must pass a final oral examination (the dissertation defense) to earn the Ph.D. degree. The dissertation must be accepted by the Ph.D. committee, the head of the graduate program, and the Fox Graduate School.