

# BIORENEWABLE SYSTEMS

## Dual-Titles

### Dual-Title M.S. and Ph.D. in BioRenewable Systems and International Agriculture and Development

#### Admission Requirements

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/>).

Students must apply and be admitted to the graduate program in BioRenewable Systems and The 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 section of the INTAD Bulletin page (<https://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

To qualify for the dual-title degree, students must satisfy the degree requirements for the degree they are enrolled in BioRenewable Systems. In addition, students must complete the degree requirements for the dual-title in INTAD, listed on the INTAD Bulletin page (<https://bulletins.psu.edu/graduate/programs/majors/international-agriculture-development/>).

The qualifying examination committee for the dual-title Ph.D. degree will be composed of Graduate Faculty from BioRenewable Systems 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 BioRenewable Systems 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/gcac-602-phd-committee-formation/>), the Ph.D. committee of a BioRenewable Systems 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 serve 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 BioRenewable Systems 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 M.S. and Ph.D. in BioRenewable Systems and Operations Research

#### Admission Requirements

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/>).

Students must apply and be admitted to the graduate program in BioRenewable Systems and The 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 OR dual-title program. Refer to the Admission Requirements section of the Operations Research Bulletin page (<https://bulletins.psu.edu/graduate/programs/majors/operations-research/>). Doctoral students must be admitted into the dual-title degree program in OR prior to taking the qualifying examination in their primary graduate program.

#### Degree Requirements

To qualify for the dual-title degree, students must satisfy the degree requirements for the degree in which they are enrolled (BioRenewable Systems). In addition, students must complete the degree requirements for the dual-title in OR, listed on the Operations Research Bulletin page (<https://bulletins.psu.edu/graduate/programs/majors/operations-research/>).

Students in the Master's dual-title program are required to write and orally defend a thesis on a topic that is approved in advance by their M S Advisory Committee and reflects their research and education in BioRenewable Systems and Operations Research. Upon completion of the Master's thesis, the student must pass a final oral examination (the thesis defense) to earn the Master's degree. The thesis must be accepted by the student's M S Advisory Committee, the head of the graduate program, and the Graduate School. The student's thesis supervisor must be a member of the Graduate Faculty recommended by the chair of the program granting the degree and approved by the Operations Research committee as qualified to supervise thesis work in operations research.

Students in the doctoral 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 BioRenewable Systems and Operations Research. 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. The qualifying examination committee for the dual-title Ph.D. degree must include at least one Graduate Faculty member from the Operations Research program. The chair and at least two members of the Ph.D. committee of an Operations Research dual-title Ph.D. student must be members of the Operations Research Graduate Faculty.