NRESS Student Learning Outcomes (SLOs) - Degree Option:
Natural Resources and Environmental Studies (NRES), PhD

The Natural Resources and Environmental Studies (NRES) PhD degree within the Natural Resources and Earth Systems Science PhD Program trains scientists and scholars whose research addresses problems dealing with the allocation and distribution of natural resources, related policies at the local to global scale, and ethical and societal factors that affect resource management. Through interdisciplinary coursework and doctoral research, we train researchers who can independently pursue the process of science and scholarship, effectively apply their research to both solve basic questions in natural resource and environmental studies and apply their work to issues of relevance to society and the environment, especially in this era of global change.

NRES PhD students are supervised and evaluated by their Ph.D. Guidance and Dissertation Committees. Each committee must include members from more than one academic department, and students are strongly encouraged to include at least one off-campus member. Doctoral candidates in NRES must pass three examinations during their PhD studies, each of which includes both written and oral sections:

1. A Comprehensive Examination consisting of extensive answers (written over three weeks) to a question from each PhD Guidance Committee member, and a subsequent oral presentation to the committee, during which they will ask for clarification of the student's answers;
2. A Dissertation Proposal Examination consisting of a written dissertation proposal, a public seminar on the proposal, public question-and-answer period, and private defense of their work to their PhD Guidance Committee.
3. A Final Defense of their dissertation consisting of a written dissertation, a public seminar on the dissertation, public question-and-answer period, and private defense of their work to their Dissertation Committee.

These dissertation proposal and defense presentations are open to the public, and all three examinations are overseen by a committee of experts consisting of faculty on the Ph.D. Guidance and Dissertation Committees. These three examinations ensure that NRES PhD graduates achieve the following learning outcomes:

- Critically review and cogently synthesize relevant literature and identify need for new research.
- Draw on previously published work to independently design and execute new experiments or field manipulations or develop models with a high degree of sophistication. The design and execution of an experiment or the building of a model should demonstrate an understanding of good laboratory, field or modeling practices.
- Structure a coherent and convincing academic argument.
- Lead the writing of manuscripts describing their research and its impacts that are suitable for publication in peer-reviewed journals or appropriate professional outlets for their particular sub-discipline and be able to describe their research in presentations at national meetings of major relevant scientific societies, and at national and international symposia hosted by other professional organizations. The general expectation is that the final dissertation will include three first-authored publications submitted to or accepted in a peer-reviewed journal, or ready for submission.
- Articulate how their research relates to a broader context outside of academia, and how their expertise will be applicable in the execution of complex research problems.