**Forestry and Natural Resources Undergraduate Thesis Program**

**Objective:** Given the desire of many students completing BS degrees within the Department of Forestry and Natural Resources (FNR) to pursue graduate school, there is a need for the department to establish a formal undergraduate thesis program. Furthermore, all students enrolled in Purdue’s Honors College are expected to produce an honors thesis or scholarly activity. Purdue’s Honors College is deferring to Purdue’s College of Agriculture to define the structure for, and expectations of, an honors thesis within its respective disciplines. In turn, the College of Agriculture is requesting that all of its disciplines describe how a student will satisfy that requirement in each department/major. Therefore, with this document, FNR is formally defining the specifics of an undergraduate thesis within the department. FNR students wishing to pursue an interdisciplinary thesis or scholarly project through the Honors College, rather than a project within FNR, should refer to the Honors College guidelines to determine how to proceed.

**Description:** Conducting an undergraduate thesis will provide a formal mechanism to integrate motivated undergraduate students into research, teaching or extension within the department. This will increase the levels of rigor and preparedness of highly motivated students focusing on graduate school. Ultimately, this option will increase student preparedness in the critical areas of scientific rigor, communication, and critical thinking. Enrollment in the FNR thesis option is restricted to students with a minimum cumulative GPA of 3.2 who can find an appropriate member from within the department who is willing to serve as an advisor for that student’s undergraduate thesis.

**Thesis Options:** The undergraduate thesis option provides three tracks: research, teaching or extension. Each track will focus on similar outcomes (see bullets below) while taking into account differing undergraduate professional interests.

* Strengthen undergraduate oral, written, and professional skills (e.g. problem solving)
* Increase linkages between undergraduates and faculty/staff in research, teaching and extension
* Increase visibility of the FNR undergraduate program and attract high caliber students
* Provide undergraduate honors students with a comprehensive and rigorous scholarly experience, culminating in the development of an undergraduate thesis
* Provide the opportunity for this research to be published in peer-reviewed journals

**Thesis Program Structure:** Undergraduates wishing to pursue a thesis must complete all of the following steps at least 6 weeks prior to graduation.

* The student must identify an advisor (who must be one of the following: FNR faculty, FNR staff, FNR post-doctoral scholars or FNR Ph.D. student who has progressed to candidacy) who agrees to serve in that capacity for their undergraduate thesis work (Note: this is best done during the student’s junior year).
* Working with that faculty advisor, the student must:
	+ Choose a topic for their thesis work
	+ Identify an undergraduate thesis committee, composed of the mentor and at least one but preferably two additional members, all of whom should be affiliated with the department. Committee members can include faculty, staff, post-doctoral scholars and not more than one Ph.D. student who has progressed to candidacy. Each committee must be composed of representatives from at least two different labs within FNR. At least one member of each committee must be an FNR faculty member who agrees to take on the advisor role if departure of other committee members from FNR leaves the student needing a new advisor.
* The semester after an FNR faculty member has agreed to serve as the faculty advisor and a committee has been formed, the student should enroll in a one-credit FNR 49800 class entitled “Thesis Proposal Development”. In lieu of a required general independent study, students may then sign up for an appropriate existing class that meets these goals where such courses exist (e.g., FNR 59800 Theory and Application of Natural Resource Extension Programming for students pursuing a thesis in extension). The relevant proposal development class experience is best done during the second semester of the student’s junior year and cannot be done after the first semester of the student’s senior year. The details of this class are at the discretion of the student and their advisor, but the following elements are required for all students:
	+ During the first four weeks of this semester the student should convene a meeting of their committee during which they present the concept for their project to their committee and receive feedback on their ideas.
	+ During the remainder of the semester the student should work on developing a clear and detailed written study plan describing their proposed thesis project, including identification of the more and less certain elements of the proposal and description of contingencies if plans do not work. This proposal is a contract for what the student will do for their second class as part of the departmental thesis track. As such, before the semester is completed, the entire committee and the student should all sign a form agreeing to the final version of the plan. Where available (e.g., Extension) appropriate templates should be used for the plan.
	+ The grade for the class is up to the instructor (thesis advisor considering feedback from the students committee). The grade must include assessment of both the presentation to the committee and the content of the final study plan and the proportional allocation of points to all elements included in the grade should be specified before the student enrolls in this class.
* During a semester subsequent to the completion of the study proposal, and before the student graduates, the student should enroll in a second FNR 49800 independent scholarship class for 3 credits. This class grants credits for the completion of the work described in the study plan. The nature of the work will vary depending upon the specifics of the thesis track selected by the student. However, it is expected that the completed thesis will be presented in some form of a public defense as a component of this class. The entire thesis committee should convene during the student’s final semester to evaluate the success of the student at completing their proposed work and the quality of the public defense for disseminating that thesis work.

**Research Track**: The research track focuses on training students to design, conduct and complete their own research under the guidance of their thesis advisor and committee. It requires students to develop undergraduate research proposals, conduct independent research (collect and analyze data), and disseminate results at an appropriate outlet (oral or poster presentation at a Purdue, state, regional or national meeting). Students who pursue the research track will develop a research proposal following the College of Agriculture’s guidelines (<https://ag.purdue.edu/oap/Pages/undergrad_research.aspx>) and are strongly encouraged to submit that proposal to the College for funding during their first semester one-credit FNR 49800 course. The second semester FNR 49800 class should culminate in the student writing a research thesis that is reviewed and approved by their thesis committee prior to their graduation. The thesis should be formatted according to the specifications determined by the student’s committee. In lieu of developing an honors thesis, a student may submit a manuscript based upon their research to a peer-reviewed scholarly publication including peer reviewed General Technical Reports and provide that document to their committee as part of their defense.

**Teaching Track:** The teaching track focuses on training students how to design, construct, and implement teaching materials under the guidance of their thesis advisor and committee. It requires students to plan, develop, implement, and evaluate scholarship of teaching materials. Such activities might include: developing several new labs for an existing FNR class, developing an inquiry-based and/or active-learning unit for the lecture classroom, such as brief lectures to introduce topics/concepts, followed by in-class activities that allow students to use the information; migrating existing FNR class materials to a new medium, such as online learning, or whatever similar activities the students thesis advisor and committee deem appropriate. The second-semester FNR 49800 class should culminate in the student writing a scholarship of learning thesis that describes the project and its implementation and assessment. This thesis should be approved by their thesis committee prior to their graduation. The thesis should be formatted according to the specifications determined by the student’s committee (e.g. an honors thesis may follow the format of an approved teaching journal/publication or technical report style). In lieu of developing a thesis a student may submit a manuscript based upon their scholarship of learning work to an appropriate peer-reviewed scholarly publication and present that document to their committee as part of their defense.

**Extension Track:**

The Extension track will focus on training students to develop, deliver, and evaluate Extension programs in their field of expertise under the guidance of their thesis advisor and committee. Once a mentor has been selected, students will be required first to enroll in FNR 59800 Theory and Application of Natural Resource Extension Programming. In this course students will develop a logic model, Extension plan, and guidelines for delivering products and evaluating programs. Subsequently the student should enroll in a three-credit independent study in extension during which they implement their planned programming and evaluate its effectiveness. Such activities might include organizing a field day, -writing a peer-reviewed extension publication, creating a peer-reviewed extension video, etc… The second-semester FNR 49800 class should culminate in the student writing a scholarship of Extension thesis that is reviewed and approved by their thesis committee prior to their graduation. The thesis should be formatted according to the specifications determined by the student’s committee as suitable for the scope of the specific project. In lieu of developing an extension thesis a student may submit a peer-reviewed reviewed extension deliverable by Purdue College of Agriculture.

**Interdisciplinary Thesis:**

We accept that FNR students enrolled in the Honors College who wish to pursue an interdisciplinary undergraduate thesis through the Honors College structure rather than an FNR undergraduate thesis are meeting satisfactory requirements in undergraduate scholarship.