

FES GRADUATE PROGRAM LEARNING OUTCOMES (LO)

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I. OVERVIEW AND LEARNING OUTCOMES

Oregon State University (OSU) requires every graduate degree program to have program-specific learning outcomes (LOs) that:

- describe what a graduate of the program can **do** as a result of attaining their graduate degree, and
- distinguish their degree program from other graduate degree programs at OSU.

The FES Graduate Program is assessed based on trends in the proportion of graduates who meet or exceed program-specific LOs. Data for this assessment are collected from assessments of: (a) the required FES courses (FES 520, 525, 526), and (b) individual students conducted during their preliminary exams (Ph.D. only) and final capstone, thesis, or dissertation defense (all students), and are used only in aggregate to describe the performance of FES programs (MF, MS, Ph.D.) as a whole. In these programs, whether a student passes or fails the exam / defense is assessed independently of the LO assessment.

Prior to the end of the 2nd (MF, MS) or 5th (Ph.D.) term of enrollment, a student is required to, with the help of their committee, produce a document that defines how they will learn and meet each of the following LOs, and then file the document with the FES Department Office.

FES Learning Outcomes for Ph.D. students:

By the end of their program (e.g., dissertation, required courses), FES PhD students will be able to:

- Produce and defend an original significant contribution to knowledge (category: Research Skills).
- Demonstrate mastery of subject material (category: Disciplinary Skills and Knowledge).
- Conduct scholarly activities in an ethical manner (category: Ethics and Responsibilities).
- Integrate multiple disciplines and collaborate with colleagues from other disciplines (category: Interdisciplinary Collaborative Problem Solving).
- Communicate effectively in written and verbal formats (category: Communication Skills).
- Utilize critical thinking and awareness skills (category: Critical Thinking and Critical Awareness Skills).
- Integrate aspects of policy, law, or management (category: Policy Analysis and Interpretation).
- Teach or assist in teaching effectively (only if student teaches or is a teaching assistant) (category: Teaching).

FES Learning Outcomes for MS and MF students:

By the end of their program (e.g., thesis/capstone, required courses), FES Masters students will be able to:

- Conduct research or produce some other form of creative work (category: Research Skills).
- Demonstrate mastery of subject material (category: Disciplinary Skills and Knowledge).
- Conduct scholarly or professional activities in an ethical manner (category: Ethics and Responsibilities).
- Integrate multiple disciplines and collaborate with colleagues from other disciplines (category: Interdisciplinary Collaborative Problem Solving).
- Communicate effectively in written and verbal formats (category: Communication Skills).
- Utilize critical thinking and awareness skills (category: Critical Thinking and Critical Awareness Skills).
- Integrate aspects of policy, law, or management (category: Policy Analysis and Interpretation).
- Teach or assist in teaching effectively (only if student teaches or is a teaching assistant) (category: Teaching).

At the preliminary exams (Ph.D. only) and final capstone, thesis, or dissertation defense (all students), the committee assesses whether a student has met each of the LOs as defined by the student's Learning Outcomes Document. The FES Learning Outcomes Assessment form, filled out at the examination by the student's committee, records the result and is filed in the FES Department Office.

The FES Graduate Program Director annually summarizes the assessment information for the faculty and Graduate School.

II. EXPLANATION OF EACH LEARNING OUTCOME CATEGORY

The explanations below are meant as general guidelines. Students and committees will interpret these and make specific recommendations for how students should prepare to learn, meet, and demonstrate them to the committee in a manner suitable to their area of study and level of advancement.

1. Research skills

- Demonstrate facility with the methods appropriate for the area of study.
- Understand the use of quantitative and qualitative summaries of data as evidence for conclusions and inference. This can include skills and knowledge needed to plan, implement, analyze, and interpret research.

2. Disciplinary skills and knowledge

- Knowledge of a student's chosen field of study, and closely related fields, including its literature on history and trends in major findings, concepts, theories, approaches, and context.

3. **Ethics and responsibilities**

- Knowledge of processes and guidelines for ensuring that the work is conducted in socially and professionally acceptable and legal ways, while minimizing and managing conflicts of interest.
- Topics of relevance may include responsible conduct of research, general ethics, peer review, bias during data analysis and presentation, plagiarism, animal welfare, treatment of human subjects, collaboration, and authorship.

4. **Interdisciplinary collaborative problem solving**

- Situate environmental issues into appropriate biophysical and social contexts, and identify disciplines necessary to address the problem.
- Collaborate in interdisciplinary teams (e.g., listen to, give and receive constructive feedback, define divisions of labor, set goals and milestones, actively work to see problems from multiple perspectives, understand group dynamics including issues around providing and accepting leadership, member responsibilities, and peer-to-peer communications).
- Provide disciplinary expertise to an interdisciplinary team.
- Articulate ideas that transcend contributing disciplines; identify commonalities and conflict among disciplines; devise approaches that support commonalities and reduce conflicts.

5. **Communication skills (oral, written, professional)**

- Effectively interact (write, speak and listen) to diverse audiences in an organized and clear fashion about areas of expertise in oral, written, and/or electronic formats.
- Explain information from one discipline to those in other relevant disciplines, and communicate to scientific and non-scientific audiences.

6. **Critical thinking and critical awareness skills**

- Discern between, and infer consequences of, multiple perspectives.
- Evaluate the quality, context, scale, and biases in information, and synthesize diverse types of information in written and oral forms.
- Effectively participate in real-time discussions of biophysical and social systems and their interactions.
- Understand the application of methods and knowledge from one discipline to another.

7. **Policy analysis and interpretation**

- Understand the role of laws, regulations, social institutions, and governance processes relevant to the application of a student's disciplinary and/or inter/trans-disciplinary areas of study.

8. **Teaching**

- Understand contemporary pedagogy, relevant teaching methods, and experience in their application in classroom, online, and technical/professional learning environments.

- Develop a classroom and/or online course, including development of a syllabus that includes LOs, classroom activities, assignments, and assessment and evaluation methods. Development may (but is not required to) include course delivery.

III. ROLES AND RESPONSIBILITIES FOR ASSESSMENT

PRIOR TO THE PRELIMINARY EXAMS AND FINAL CAPSTONE, THESIS, OR DISSERTATION DEFENSE

1. **By the end of their 2nd term (MS, MF) or 5th term (Ph.D.) of enrollment** in the FES Graduate Program, the student must work with their graduate committee to develop their Learning Outcomes (LO) Document, culminating in a three-part LO Document filed with the FES Department. **Student responsibilities include:**
 - a. Writing a plan to achieve the specific LOs that is acceptable to the student's graduate committee,
 - b. Obtaining required signatures on the coversheet indicating acceptance of the plan, and finally,
 - c. Submitting the compiled document to the FES Department Office for review, approval, and inclusion in the student's program file.

Please see 'Guidance for Creating the Learning Outcomes Document' below for instructions for completing and submitting the LO Document.

2. **In the week prior to the preliminary exams (Ph.D. only) and final capstone, thesis, or dissertation defense (all students)**, the student is responsible for making sure copies of the previously-completed and signed LO Document are provided to all committee members.

DURING THE PRELIMINARY EXAMS AND FINAL CAPSTONE, THESIS, OR DISSERTATION DEFENSE

LOs are to be tested and assessed by the student's graduate committee at their preliminary exams (Ph.D. only) and final capstone, thesis, or dissertation defense (all students). LOs are assessed independently of the thesis, capstone, or dissertation and overall student performance. That is, the failure to meet expectations for any LO as documented on the LO Assessment form need not necessarily affect the vote to pass.

The FES Representative is responsible for leading the discussion during the assessment and for filing the completed LO Assessment form with the FES Department after conclusion of the exam / defense.

1. During the defense portion of the exam, all graduate committee members may ask questions to assess how well the student has met the LOs.
 - a. The LO Document (previously completed by the student and approved by the committee) will define the specifics by which each LO is assessed.
 - b. It is preferable that committee members rely on demonstrations during the exam / defense to assess how well a student has met each LO. However, committee

members may use evidence of demonstrated ability outside of the exam / defense when such demonstrations are not possible during the exam / defense (e.g., teaching, ethical behavior).

- c. All graduate committee members should participate fully in the assessment of the LOs at the conclusion of the exam / defense.
2. The FES Representative will lead the discussion concerning the LO assessment during the committee's deliberations on the student's performance and they will fill out the LO Assessment form based on input from the committee.
 - a. The FES Representative is a member of the graduate committee and regular member of the FES Department. 'Regular' means not courtesy, not adjunct or affiliate, and regularly attends FES departmental meetings. It is typical that the FES Representative is the student's major professor, but when the major professor is not a regular member of the department, another qualified committee member will be the FES Representative.
 - b. Committee members will provide the FES Representative with input to assist in completing the form.
 - c. Any required remedial action for the student and the timeline for that action are to be recorded and attached to the LO Assessment form.
 - d. LOs are assessed independently of the thesis, capstone, or dissertation, and overall student performance. That is, the failure to meet expectations for any LO as documented on the LO Assessment form need not necessarily affect the vote to pass.
 3. The student will sign the LO Assessment form acknowledging they understand the assessment.

AT THE CONCLUSION OF THE PRELIMINARY EXAMS AND FINAL CAPSTONE, THESIS, OR DISSERTATION DEFENSE

The FES Representative turns the LO Assessment form into the FES Department Office immediately after the exam / defense. The form will be placed in the student's file. **The FES Department Head will not sign off on the ETD form (required for capstone, thesis, or dissertation submission) until the completed LO Assessment form is on file with the department.**

IV. COMPOSITION OF THE LEARNING OUTCOMES DOCUMENT

The LO Document consists of 3 parts:

1. **The LO Coversheet:** A FES form requiring signatures from the student, the major professor(s), and the Graduate Program Director to indicate approval of the document.
2. **The LO List:** Copy and paste the LOs and categories from above.

3. **The LO Plan:** A detailed narrative (bullet-point is fine) explaining how each LO in the LO List will be achieved.

V. GUIDANCE FOR CREATING THE LEARNING OUTCOMES DOCUMENT

1. **List each LO (from above) and then write a detailed plan (bullet points or 1-2 paragraphs for each outcome), describing how you will develop the skills and knowledge to support each outcome, and how you will meet and demonstrate each outcome.** You may include experiences and activities undertaken as part of your coursework, research, professional development, department service, previous education, or previous life experience.

The purpose of the LO Plan is to make clear to the committee and the student how learning activities support the LOs. There is no penalty if you develop your skills/knowledge in a different way than you described in your plan.

Example: "I will pass FES 523 (Quantitative Analysis in Social Science) and complete coursework with an emphasis on statistical analyses, focusing on understanding data, selecting appropriate statistics for theoretical and managerial problems, using statistical software for analyses, and interpreting findings. I will then conduct statistical analyses for my thesis research, present results from these analyses, and discuss implications of these results in both my thesis and final exam presentation."

2. **Sign the LO Coversheet and obtain your major professor's signature.** Other committee members should review and approve your completed document, but are not required to sign the LO Coversheet.
3. **Create your LO Document.** After completing the steps above, compile the resulting products in the following order:
 - a. LO Coversheet
 - b. LO List (copy and paste from above)
 - c. LO Plan
4. **Submit your LO Document to the Graduate Coordinator by the appropriate deadline.** Once received, the Graduate Coordinator will review your LO Document and send it to the Graduate Program Director for review and approval.
 - a. If the Graduate Program Director approves, they will sign it and return it to the Graduate Coordinator. If your specific LO plan is unclear or does not reflect graduate level learning, you may be asked to complete and submit a revised version.
 - b. After the Graduate Program Director approves your LO Document, the Graduate Coordinator will provide you with a digital copy and retain a copy in your program file.
5. **Prior to your preliminary exams (Ph.D.) and final capstone, thesis, or dissertation defense (all students), resend your LO Document to all the members of your committee, including the Graduate Council Representative (GCR).**

