

<b>Program Information</b>	
Program:	Water Resources Engineering PhD
Reporting Time Period:	2020-2021
College or Administrative Division:	Graduate School
Subunit(s)	Water Resources Graduate Program
Report Submitted By:	Dr. Mary V. Santelmann, Professor and Director, Water Resources Graduate Program
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Date Submitted:	June 1, 2022
Due Date:	June 15, 2022
URL to Program GLOs:	<a href="https://gradwater.oregonstate.edu/water-resources-engineering-wre">https://gradwater.oregonstate.edu/water-resources-engineering-wre</a>

	<b>University: Graduate Learning Outcomes (GLOs) for Doctoral students (approved by Faculty Senate on January 13, 2011)</b>			<b>Program Level Student Learning Outcomes (add additional columns if needed)</b>			
<b>Outcomes:</b> University and program level student learning outcome (GLO)	Produce and defend an original significant contribution to knowledge GLO 1	Demonstrate mastery of subject material GLO 2	Conduct scholarly or professional activities in an ethical manner GLO 3	Conduct original research to extend knowledge in water resources engineering	Demonstrate in-the ability to carry out original and useful research in some area of water resource engineering.	Communicate professionally about water resources and water resources research in engineering.	Demonstrate a commitment to diversity and high ethical standards in scholarship, teaching, and service.
<b>Outcomes:</b> What year was this program level learning outcome developed or most recently changed?	NA	NA	NA				

Assessment Method							
<p><b>Assessment Method</b><sup>1</sup>: List the measures or instruments used to assess each outcome. [How do students demonstrate their attainment of the learning outcome? How is their learning evaluated?] At least one of these must be a direct measure. For additional guidance see: <a href="https://apa.oregonstate.edu/assessment-resources">https://apa.oregonstate.edu/assessment-resources</a></p>	Completion and successful defense of thesis or project paper	Achievement of grade of A- on the group brief and group presentation in WRP 524. Learning is evaluated in comparison to the rubric for the brief and presentation	Appropriate references to the literature in thesis or project and completion of CITI modules on research ethics. Participation in class session on ethics in WRP 524.	Conducting thesis or project research and presenting results at their final examination	Successful completion of BEE 512 Physical Hydrology with grade of B- or better.	Present in WRP 524 and/or at professional meetings, and at final thesis or project defense	Complete training in research ethics (CITI modules), participate in WRP class discussion of codes of ethics.
<p><b>Assessment Method</b>: Has this assessment method changed since the last reporting cycle? Yes or No. Explain any changes.</p>	No, however, here we clearly identify this as the GLO 1 from the Graduate School	Yes, in response to feedback we now use achievement of grade of A- on the group project and presentation in WRP 524 as an indicator of mastery for core course	No, however, here we clearly identify this as the GLO 3 from the Graduate School	No	Yes, in response to feedback we use performance in the foundation course in hydrology as a benchmark for this assessment metric.	No	No
Benchmark for evaluating satisfactory achievement of learning outcome							

<p><b>Benchmark<sup>2</sup>:</b> What benchmark or milestone, related to the specific measure or instrument, is used to determine whether the outcome has been satisfactorily met by the students?</p>	<p>Successful defense, passing with no more than one dissenting vote</p>	<p>Achievement of a grade of A- (90% of points) for the group brief and group presentation.</p>	<p>Completion of CITI modules, participation in WRP 524, and evaluation of ethics at defense by committee</p>	<p>Successful defense, passing with no more than one dissenting vote</p>	<p>Completion of coursework on program of study with grade of B- or better</p>	<p>Presentation at final defense as well as at the annual PNW Water Research Symposium or professional meetings</p>	<p>Completion of CITI modules, participation in WRP 524</p>
<p><b>Benchmark:</b> Describe any changes to the benchmark or milestone since the last reporting cycle.</p>	<p>Made this benchmark more specific</p>	<p>This is a new benchmark for a new GLO assessment metric.</p>	<p>None</p>	<p>Made this benchmark more specific</p>	<p>Specific review of student grades in coursework added</p>	<p>none</p>	<p>none</p>
<p><b>Process used for gathering assessment data</b></p>							
<p><b>Process:</b> Describe the <u>data collection process</u> (e.g., Who is involved? How is the data collected?)</p>	<p>GLO Assessment at defense; committee participates, sends form to program assistant</p>	<p>GLO Assessment at defense; committee participates, sends form to program assistant</p>	<p>GLO Assessment at defense; committee participates, sends form to program assistant</p>	<p>GLO Assessment at defense; committee participates, sends form to program assistant</p>	<p>Evaluated by Director in quarterly review of student grades and GPA</p>	<p>Assessed by graduate committee and major advisor</p>	<p>Requirement for WRP 524 course, taught by program Director.</p>
<p><b>What do the data show about student learning?</b></p>							

<p><b>Results:</b> What do the results show about student learning relative to the specific graduate learning outcome? Describe any result, pattern, or trends that you identify as meaningful or that highlights an area(s) of concern or success.</p>	<p>Students demonstrate success in planning and conducting research through successful defenses</p>	<p>All PhD students in the incoming cohort earned over 90% of the points for their group brief and all earned more than 90% of the points for their presentations</p>	<p>Students consistently meet expectations for conducting research in ethical manner as shown on GLO forms</p>	<p>Students have been successful in completing and defending their theses</p>	<p>Students consistently complete the coursework on their program of study in a timely manner. No trends apparent.</p>	<p>Students demonstrate the ability to present research results in coursework and at professional meetings</p>	<p>No trends; students all complete CITI modules and participate in discussions of ethics in courses</p>
<p><b>Actions</b></p>							
<p><b>Actions:</b> Describe any <u>course-level</u> (content, pedagogical, structural, etc.) changes that are an outgrowth of the current year's assessment of this outcome. Include timelines.</p>	<p>No changes needed</p>	<p>No changes needed</p>	<p>No changes needed</p>	<p>No changes needed</p>	<p>No changes needed</p>	<p>No changes needed</p>	<p>No changes needed</p>
<p><b>Actions:</b> Describe any <u>program or degree-level changes</u> that are an outgrowth of the current year's assessment of this outcome. Include timeline.</p>	<p>No changes needed</p>	<p>No changes needed</p>	<p>No changes needed</p>	<p>No changes needed</p>	<p>No changes needed</p>	<p>No changes needed</p>	<p>No changes needed</p>
<p><b>Full-Cycle Impact</b></p>							

<p><b>Full-Cycle impact:</b> If the program had previously taken action to address student performance relative to graduate learning outcomes, what impact have the changes had on student learning? For example, if in a prior reporting cycle you reported the addition of a course to address deficiencies in GLO 2, do you see improvements in student performance that may be tied to the curricular change?</p>	No changes needed	No discernible impact. Students have consistently performed at a high level on these assignments.	No changes needed	No changes needed	No changes needed	No changes needed	No changes needed
<p><b>Process, Reflection and Planning</b></p>							
<p>Describe the process the program used to reflect on the outcome data.</p>	Preparation of this annual assessment; discussion at faculty meeting	Preparation of this annual assessment; discussion at faculty meeting	Preparation of this annual assessment; discussion at faculty meeting	Preparation of this annual assessment; discussion at faculty meeting	Preparation of this annual assessment; discussion at faculty meeting	Preparation of this annual assessment; discussion at faculty meeting	Preparation of this annual assessment; discussion at faculty meeting
<p>Were there any challenges or concerns?</p>	No	No	No	No	No	No	No
<p>How are the results of your assessment effort related to strategic planning and overall program review?</p>	GLO Assessments inform the faculty in the program and the biannual report, and will assist in the next	GLO Assessments inform the faculty in the program and the biannual report, and will assist in the next	GLO Assessments inform the faculty in the program and the biannual report, and will assist in the next	GLO Assessments inform the faculty in the program and the biannual report, and will assist in the next	GLO Assessments inform the faculty in the program and the biannual report, and will assist in the next	GLO Assessments inform the faculty in the program and the biannual report, and will assist in the next	GLO Assessments inform the faculty in the program and the biannual report, and will assist in the next

