



Student Learning Outcome Assessment Plan

Department: Physics
 Degree Program: BS-Physics
 Revised Fall 2015

Student Learning Outcome (performance, knowledge, attitudes)	Related CWU Strategic Outcome(s) http://www.cwu.edu/strategic-planning/	Method(s) of Assessment (What is the assessment?)*	Who Assessed (Students from what courses - population)**	When Assessed (term, dates)***	Standard of Mastery/ Criterion of Achievement (How good does performance have to be?)
<p><i>Content Knowledge</i></p> <p>1. Graduates demonstrate a comprehensive knowledge base of the major areas of physics and related disciplines.</p>	<p>1.1.1 Students will achieve programmatic learning outcomes.</p>	<p>Direct (Major Field Test with a comparison to their GPA in specific Physics courses)</p> <p>Direct (GPA for first-year Physics and Mathematics sequence)</p>	<p>Students enrolled in PHYS 489-Ellensburg campus</p> <p>MATH 172, 173, and PHYS 181-183 (including labs)-Ellensburg campus (or appropriate transfer institution)</p>	<p>End-of-program with a comparison to their performance throughout the program (F/W/S)</p> <p>Middle of program (F/W/S)</p>	<p>Information is documented by the Department. Artifacts are assessed by the Department's Assessment Committee as either "Exceeds Standard," "Meets Standard," or "Fails Standard" (explained at the end of this document).</p> <p>Note: MFT "Introductory": PHYS 181-183, 317, 318, 342, 351, 363, 381, 382, 383.</p> <p>MFT "Advanced": PHYS 301, 331, 333, 334, 352, 361, 463, 474, 475.</p>
<p><i>Technical Skills</i></p> <p>2. Graduates perform experimental, computational, and analytical techniques in solving physics and physics-related problems.</p>	<p>1.1.1 Students will achieve programmatic learning outcomes.</p>	<p><u>Experimental</u></p> <p>Direct (practicum and project)</p> <p><u>Computational</u></p> <p>Direct (project)</p>	<p><u>Experimental</u></p> <p>Students enrolled in PHYS 331</p> <p><u>Computational</u></p> <p>Students enrolled in the computational course PHYS 361-Ellensburg campus</p>	<p><u>Experimental</u></p> <p>Middle-of-program/End-of-program (F/W/S)</p> <p><u>Computational</u></p> <p>Middle-of-program/End-of-program (F/W/S)</p>	<p>Information is taken from student portfolios. Artifacts are assessed by the Department's Assessment Committee as either "Exceeds Standard," "Meets Standard," or "Fails Standard." Feedback from the course instructor, including grading rubric, will also be used.</p>

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<p><i>Intellectual Skills</i></p> <p>3. Graduates demonstrate critical thinking skills.</p>	<p>1.1.1 Students will achieve programmatic learning outcomes.</p> <p>3.1.2 Sustain the number of courses that include research, scholarship, and creative expression skills as key outcomes.</p>	<p>Direct (research project)</p>	<p>Students enrolled in PHYS 495-Ellensburg campus</p>	<p>End-of-program (F/W/S)</p>	<p>Information is documented by the student and entered into their portfolio. Artifacts are assessed by the Department's Assessment Committee as either "Exceeds Standard," "Meets Standard," or "Fails Standard." Feedback from the research advisor, including the grading rubric, will be used.</p>
<p><i>Communication Skills</i></p> <p>4. Graduates demonstrate an ability to communicate effectively.</p>	<p>1.1.1 Students will achieve programmatic learning outcomes.</p>	<p><u>Oral communication</u></p> <p>Direct (presentation)</p> <p><u>Written communication</u></p> <p>Direct (formal report)</p>	<p><u>Oral communication</u></p> <p>Students enrolled in PHYS 495-Ellensburg campus</p> <p><u>Written communication</u></p> <p>Students enrolled in PHYS 363-Ellensburg campus</p>	<p><u>Oral communication</u></p> <p>End-of-program (F/W/S)</p> <p><u>Written communication</u></p> <p>Middle-of-program (F/W/S)</p>	<p>Information is taken from student portfolios. Artifacts are assessed by the Department's Assessment Committee as either "Exceeds Standard," "Meets Standard," or "Fails Standard." Feedback from the course instructor/research advisor, including the grading rubric, will also be used. For the Written Communication, faculty use the Washington State discipline-based writing rubric.</p>
<p><i>Civic Engagement</i></p> <p>5. Graduates demonstrate responsible stewardship to the community.</p>	<p>1.1.1 Students will achieve programmatic learning outcomes.</p> <p>4.1.2 Increase the number of collaborations and partnerships with external community entities and organizations.</p>	<p>Direct (presentation or project)</p>	<p>Students volunteer to assist in an outreach program sponsored by the Department. If it is not performed by the senior year, then it becomes a requirement for PHYS 489</p>	<p>Middle-of-program/End-of-program (F/W/S)</p>	<p>Information is taken from student portfolios. Artifacts are assessed by the Department's Assessment Committee as either "Exceeds Standard," "Meets Standard," or "Fails Standard." Feedback from the outreach advisor will also be used.</p>

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<i>Life-long Learning</i> 6. Graduates demonstrate and ability to learn new material independently from a variety of resources, to be used throughout their life.	1.1.1 Students will achieve programmatic learning outcomes.	Indirect (survey of alumni) Indirect (survey of graduates) Direct (annotated bibliography that is part of a report/paper)	Five year alumni survey-Ellensburg campus Seniors applying for graduation-Ellensburg campus Students enrolled in PHYS 495 or upper division physics course-Ellensburg campus	Post-program (S) End-of-program (F/W/S) Middle of program/End-of-program (F/W/S)	Information is documented by the Department and assessed by the Department's Assessment Committee as either "Exceeds Standard," "Meets Standard," or "Fails Standard."

*Method(s) of assessment should include those that are both direct (tests, essays, presentations, projects) and indirect (surveys, interviews) in nature

**Data needs to be collected and differentiated by location (Ellensburg campus vs University Centers) and modality (face-to-face, online)

***Timing of assessment should ideally be at different transition points of program (i.e., admission, mid-point, end-of-program, post-program)

rev. 11/14

Assessment Cycle

Analysis and Interpretation: December
Improvement Actions: Completed by June
Dissemination: Completed by June

Year SLOs	15-16	16-17	17-18	18-19	19-20	20-21
1	X	X	X	X	X	X
2	X	X	X	X	X	X
3	X	X	X	X	X	X
4	X	X	X	X	X	X
5	X	X	X	X	X	X
6	X	X	X	X	X	X

Assessment Oversight

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