



Student Learning Outcome Assessment Plan

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

Many Student Learning Outcomes for this program are assessed through Portfolios.

For Standardized question based assessment, the Criterion of Achievement is “75% of students achieve a rating of Exemplary or Proficient” referred to as “Standardized question” in the table below.

For all Portfolio based assessment, the Criterion of Achievement is “75% of applicable Portfolio artifacts achieve a rating of Exemplary or Proficient” referred to as “Portfolio Criterion” in the table below.

Student Learning Outcome (performance, knowledge, attitudes)	Related CWU Strategic Outcome(s) <a href="http://www.cwu.edu/strategic-planning/">http://www.cwu.edu/strategic-planning/</a>	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?)
1. Graduates will be able to use differential and integral calculus as well as sequences and series to solve problems.	1.1.1 Students will achieve programmatic learning outcomes.	Standardized question	Math 376 or 377	Winter/Spring	Yes/No
2. Graduates will be able to use concepts of vector subspaces of $R^n$ and $R^{n \times m}$ to solve problems.	1.1.1 Students will achieve programmatic learning outcomes.	Standardized question	Math 376 or 377	Winter/Spring	Yes/No
3. Graduates will be to write proofs using contrapositive, contradiction, cases, and mathematical induction.	1.1.1 Students will achieve programmatic learning outcomes.	499S Portfolio	Students in MATH 499S	Winter	Portfolio Criterion

<b>Student Learning Outcome (performance, knowledge, attitudes)</b>	<b>Related CWU Strategic Outcome(s)</b> <a href="http://www.cwu.edu/strategic-planning/">http://www.cwu.edu/strategic-planning/</a>	<b>Method(s) of Assessment (What is the assessment?)*</b>	<b>Who Assessed (Students from what courses - population)**</b>	<b>When Assessed (term, dates)***</b>	<b>Standard of Mastery/ Criterion of Achievement (How good does performance have to be?)</b>
4. Graduates will know standard applications of calculus, linear algebra, and statistics.	1.1.1 Students will achieve programmatic learning outcomes.	499S Portfolio	Students in MATH 499S	Winter	Portfolio Criterion
5. Graduates will be able to apply their understanding of mathematics to fields outside of mathematics.	1.1.1 Students will achieve programmatic learning outcomes.	499S Portfolio	Students in MATH 499S	Winter	Portfolio Criterion
6. Graduates will be able to describe the differences between the following types of mathematics: discrete/continuous, algebraic/geometric, pure/applied, deterministic/stochastic.	1.1.1 Students will achieve programmatic learning outcomes.	499S Portfolio	Students in MATH 499S	Winter	Portfolio Criterion
7. Graduates will be able to communicate mathematical ideas through writing.	1.1.1 Students will achieve programmatic learning outcomes.	499S Portfolio	Students in MATH 499S	Winter	Portfolio Criterion
8. Graduates will be able to communicate mathematical ideas orally.	1.1.1 Students will achieve programmatic learning outcomes.	499S Portfolio	Students in MATH 499S	Winter	Portfolio Criterion

\*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)

### 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				
2		X				
3	X					
4			X			
5			X			
6				X		
7					X	
8						X

### Assessment Oversight

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