



Student Learning Outcome Assessment Plan

Department: Mathematics  
Degree Program: BS-Actuarial Science

Many Student Learning Outcomes for this program are assessed through Course Grades and Surveys.

For Course Grade based assessment, the Criterion of Achievement is “80% of students pass course with a B or better on 1<sup>st</sup> or 2<sup>nd</sup> attempt” referred to as “Grade Criterion” in the table below.

For Survey based assessment, the Criterion of Achievement is a response rate of 80% and that 80% of student responses are either Strongly Agree or Agree with the statements in the survey. This is referred to as “Survey 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 statistical methods to analyze and model time-independent and time-series data.	1.1.1 Students will achieve programmatic learning outcomes.	Course Grade	Students in MATH 311, 410AB, 411BC	Quarterly	Grade Criterion
2. Graduates will be able to use statistical methods and credibility theory to analyze and model insurance loss data.	1.1.1 Students will achieve programmatic learning outcomes.	Course Grade	Students in MATH 417ABC	Quarterly	Grade Criterion
3. Graduates will be able to formulate actuarial problems in mathematics, probabilistic and statistical terms.	1.1.1 Students will achieve programmatic learning outcomes.	Course Grade	Students in MATH 417ABC, 418AB, 419ABC	Quarterly	Grade 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 be able to apply common probability distributions to actuarial applications.	1.1.1 Students will achieve programmatic learning outcomes.	Course Grade	Students in MATH 411AB, 417ABC, 419ABC	Quarterly	Grade Criterion
5. Graduates will be able to apply concepts of differential and integral calculus to actuarial problems.	1.1.1 Students will achieve programmatic learning outcomes.	Course Grade	Students in 411AB, 418ABC, 417ABC, 419ABC	Quarterly	Grade Criterion
6. Graduates will be able to employ simulation techniques to analyze and solve dynamic and complex stochastic and mathematical models	1.1.1 Students will achieve programmatic learning outcomes.	Internship Survey and Post-Graduation Survey	Students on Internships and Graduates	Fall, Winter	Survey Criterion
7. Graduates will be able to use programming languages such as C++, S, or Visual Basic	1.1.1 Students will achieve programmatic learning outcomes.	Internship Survey, Senior Survey and Post-Graduation Survey	Students on Internships, Seniors, and Graduates	Fall, Winter	Survey Criterion
8. Graduates will be able to communicate results and solutions of mathematical, statistical, and actuarial problems in writing using everyday and mathematical language.	1.1.1 Students will achieve programmatic learning outcomes.	Internship Survey, Senior Survey and Post-Graduation Survey	Students on Internships, Seniors, and Graduates	Fall, Winter	Survey Criterion
9. Graduates will be able to communicate mathematical and statistical solutions orally, using both everyday and mathematical language.	1.1.1 Students will achieve programmatic learning outcomes.	Internship Survey, Senior Survey and Post-Graduation Survey	Students on Internships, Seniors, and Graduates	Fall, Winter	Survey 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	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		
7	X				X	
8		X				X
9			X			

## Assessment Oversight

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