Central Washington University
Assessment of Student Learning
Department and Program Report

Please enter the appropriate information concerning your student learning assessment activities for this year.

Academic Year of Report: 2013/2014  
College: COTS  
Department: Mathematics  
Program: BS, Mathematics

1. What student learning outcomes were assessed this year, and why?
In answering this question, please identify the specific student learning outcomes you assessed this year, reasons for assessing these outcomes, with the outcomes written in clear, measurable terms, and note how the outcomes are linked to department, college and university mission and goals.

All 8 of the Student Learning Outcomes (attached) were assessed. We chose these because it was not clear what criteria we could use to exclude any.

2. How were they assessed?
In answering these questions, please concisely describe the specific methods used in assessing student learning. Please also specify the population assessed, when the assessment took place, and the standard of mastery (criterion) against which you will compare your assessment results. If appropriate, please list survey or questionnaire response rate from total population.

A) What methods were used?
For the Outcomes with a Grade-based Criterion of Achievement, data from Safari was obtained.
For the Outcomes with a Portfolio-based Criterion of Achievement, Portfolios collected in the senior capstone class (Math 499S) were assessed.

B) Who was assessed?
We assessed Mathematics BS majors enrolled in the Winter 2013 senior capstone class, Math 499S.

C) When was it assessed?
Winter Quarter, 2013

3. What was learned?
In answering this question, please report results in specific qualitative or quantitative terms, with the results linked to the outcomes you assessed, and compared to the standard of mastery (criterion) you noted above. Please also include a concise interpretation or analysis of the results.

All of our majors met our goal for SLO’s #1,2. Additionally, a super-majority of our majors met the other assessed criteria. (Please see the attached results.)
4. What will the department or program do as a result of that information?
In answering this question, please note specific changes to your program as they affect student learning, and as they are related to results from the assessment process. If no changes are planned, please describe why no changes are needed. In addition, how will the department report the results and changes to internal and external constituents (e.g., advisory groups, newsletters, forums, etc.).

First, we will discuss the results in a department meeting. Following that, we will continue to hone our Math 499S to more clearly assess our majors.

5. What did the department or program do in response to last year’s assessment information?
In answering this question, please describe any changes that have been made to improve student learning based on previous assessment results. Please also discuss any changes you have made to your assessment plan or assessment methods.

Last year’s reading assessment was discussed in department meetings. Generally, the department was satisfied with the results.

6. Questions or suggestions concerning Assessment of Student Learning at Central Washington University:
Many Student Learning Outcomes for this program are assessed through Course Grades and Portfolios.

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

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Method(s) of Assessment</th>
<th>Who Assessed</th>
<th>When Assessed</th>
<th>Criterion of Achievement</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Graduates will be able to use differential and integral calculus as well as sequences and series to solve problems.</td>
<td>Course Grades</td>
<td>Students in MATH 172, 173, 272, 273</td>
<td>Quarterly</td>
<td>Grade Criterion</td>
<td>100% of the students assessed met this criterion.</td>
</tr>
<tr>
<td>2. Graduates will be able to use concepts of vector subspaces of $\mathbb{R}^n$ and $\mathbb{R}^{n \times m}$ to solve problems.</td>
<td>Course Grades</td>
<td>Students in MATH 265</td>
<td>Quarterly</td>
<td>Grade Criterion</td>
<td>100% of the students assessed met this criterion.</td>
</tr>
<tr>
<td>3. Graduates will be to write proofs using contrapositive, contradiction, cases, and mathematical induction.</td>
<td>499S Portfolio</td>
<td>Students in MATH 499S</td>
<td>Winter</td>
<td>Portfolio Criterion</td>
<td>8 of 9 students met this criterion</td>
</tr>
<tr>
<td>4. Graduates will know standard applications of calculus, linear algebra, and statistics.</td>
<td>499S Portfolio</td>
<td>Students in MATH 499S</td>
<td>Winter</td>
<td>Portfolio Criterion</td>
<td>8 of 9 students met this criterion</td>
</tr>
<tr>
<td>5. Graduates will be able to apply their understanding of mathematics to fields outside of mathematics.</td>
<td>499S Portfolio</td>
<td>Students in MATH 499S</td>
<td>Winter</td>
<td>Portfolio Criterion</td>
<td>8 of 9 students met this criterion</td>
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<td>6. Graduates will be able to describe the differences between the following types of mathematics: discrete/continuous, algebraic/geometric, pure/applied, deterministic/stochastic.</td>
<td>499S Portfolio</td>
<td>Students in MATH 499S</td>
<td>Winter</td>
<td>Portfolio Criterion</td>
<td>This criterion was not assessed.</td>
</tr>
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<td>7. Graduates will be able to communicate mathematical ideas through writing.</td>
<td>499S Portfolio</td>
<td>Students in MATH 499S</td>
<td>Winter</td>
<td>Portfolio Criterion</td>
<td>7 of 9 students met this criterion</td>
</tr>
<tr>
<td>8. Graduates will be able to communicate mathematical ideas orally.</td>
<td>499S Portfolio</td>
<td>Students in MATH 499S</td>
<td>Winter</td>
<td>Portfolio Criterion</td>
<td>8 of 9 students met this criterion</td>
</tr>
</tbody>
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