

**CENTRAL OREGON COMMUNITY COLLEGE**  
**Outcome Assessment Analysis**  
*Executive Summary*

**Theme/Program Area/Course: /Math /Math 111**

<b>Outcome(s)</b>		
<p><b>Theme-Level Outcome:</b></p> <ul style="list-style-type: none"> <li>• <b>Program-Level Outcome:</b> Recognize which mathematical concepts are applicable to a scenario, apply appropriate mathematics and technology in its analysis, and then accurately interpret, validate, and communicate the results.</li> </ul> <p><b>Course-Level Outcomes:</b></p> <ul style="list-style-type: none"> <li>• model and solve applied, real-world, and theoretical mathematical problems requiring the solution of linear, quadratic, polynomial, rational, exponential, and logarithmic functions.</li> <li>• use a graphing calculator to create appropriate graphs that represent mathematical models, determine appropriate viewing windows and accurately interpret and draw inferences regarding the meaning, implications and limitations of the graphs.</li> <li>• examine a variety of relationships stated in symbolic, graphical, or tabular form and determine which represent functions; determine what the domain and range of functions are; and draw inferences regarding the meaning, implications and limitations of the given representation of the function.</li> <li>• modify and combine algebraic and graphical representations of functions and describe the relationship between the methods and functional representations.</li> </ul>		
<b>Assessment</b>		
<p><b>Classification:</b> Would you classify your assessment as direct or indirect? (<i>See reverse.</i>)</p>	<input checked="" type="checkbox"/> Direct	<input type="checkbox"/> Indirect
<p><b>Description:</b> Briefly describe the methodology of your assessment. How did you set up and administer your assessment? How did you collect data? (e.g. Rubric, Exam, Skills Performance Checklist, Survey)</p> <p><i>We designed 4 questions in attempt to assess our four learning outcomes for our math 111 courses. All instructors of math 111 were asked to include these four questions (verbatim) on their final exams. All the instructors complied, so we assessed every math 111 student that took the math 111 final – including an online class.</i></p> <p><b>Benchmark (if available):</b> Desired performance of ___ % success rate by the cohort of students</p>		
<b>Assessment Cohort Demographics</b>		
<p>Number of course sections assessed: <u>  7  </u> / Number offered: <u>  7  </u> = <u> 100 </u>% of courses assessed            Number of students assessed: 172/ Number of students in all sections:172= 100% of students assessed</p>		
<b>Results</b>		
<p><b>Reporting:</b> What did you find? How many students or what percentage of students met, or did not meet the outcome(s)?</p>		

Two instructors did not break down their results by question, but rather by student. So, I have two sets of results. First will be by question and then by student.

Question #1  $91/136 = 67\%$  answered correctly  
Question #2  $84/136 = 62\%$  answered correctly  
Question #3  $78/136 = 57\%$  answered correctly  
Question #4  $29/136 = 21\%$  answered correctly

The other two instructors broke down their results by student.

0 students got all four correct  
 $7/33 = 21\%$  got 3 out of 4 questions correct  
 $17/33 = 52\%$  got 2 out of 4 questions correct  
 $7/33 = 21\%$  got 1 out of 4 questions correct  
 $2/33 = 6\%$  got 0 out of 4 questions correct

### Analysis

**Overall summary of observations:** What do the assessment results say about how well all students achieve the intended student learning outcomes? If the outcome(s) was not met, does your analysis of the assessment suggest possible reasons why?

*We did not set a benchmark, but clearly these results would not have met any reasonable benchmark. The reasons why could be that the questions did not mirror the outcomes close enough. Also, the questions were not written by the student's instructor, so there could have been some confusion as the questions may have seemed new to the student. Another obvious reason is that the particular objectives were not taught in a meaningful and deep way.*

### Closing the Loop

**Preliminary Recommendations:** What does this project suggest is the next step? Run the assessment again and continue to collect data? Modify the assessment? Make changes to the curriculum?

*The next step is to repeat this assessment. We will look at our learning outcomes and our questions to make sure we are aligned properly. We will discuss both the outcomes and the result of this assessment early in the fall quarter to better focus our math 111 course toward our student learning outcomes.*

**Plans for reassessment following curriculum change:** If changes are made to your course, how might you reassess for improvement?

*No curriculum changes are planned as of yet.*

**Are you satisfied with this assessment project?** If so, why? If not, how might you modify it so that it might produce more meaningful data?

*I think the data is meaningful, yet disappointing. We will fine tune this assessment project and repeat it in the fall.*

### Direct vs. Indirect Assessment

Students demonstrate that they have learned specific skills or concepts through *direct assessment measures* like student products or performances. By contrast, *indirect assessment measures* are analyses

of reported rates or perceptions that imply that student learning has taken place and that outcomes have been met.

Examples of Direct and Indirect Assessment from Texas A&M University's Office of Institutional Assessment:

**Direct Assessment**

- Pre and posttests
- Course-embedded assessment (e.g., homework assignment; essays, locally developed tests)
- Comprehensive exams
- National Major Field Achievement Tests
- Certification exams, licensure exams
- Portfolio evaluation
- Case studies
- Reflective journals
- Capstone projects
- Internal/external juried review of performances and exhibitions
- Internship and clinical evaluation
- External examiners/peer review
- Grading with criteria or rubrics

**Indirect Assessment**

- Departmental survey
- Exit interviews
- Alumni survey
- Employer survey
- Student survey
- Graduate survey
- Focus groups
- Job placement statistics
- Graduation and retention rates