

Santiago Canyon College

Mathematics Department

Math 280, Intermediate Calculus

Spring 2013

Student Learning Outcome Assessment

Math 280 Student Learning Outcomes (Fall 2010)

1. State and apply basic definitions, properties and theorems of multivariable Calculus
2. Apply vector operations in two and three dimensions and use vector methods to analyze plane and space curves, and curvilinear motion.
3. Apply standard techniques of multivariable calculus, both differential and integral to solve selected applied problems

COURSE SLO ASSESSMENT REPORT, SCC

Department: Mathematics Course: Math 280, Intermediate Calculus

Year: 2013 Semester: Spring

1) Outcome to be assessed	2) Means of assessment and criteria of success	3) Summary of data collected	4) Analysis of data	5) Plan of action/what to do next																		
<p>SLO 3</p> <p>Apply standard techniques of multivariable calculus, both differential and integral to solve selected applied problems.</p>	<p>2) Score #2b on each final exam using the attached 5-point rubric.</p> <p>3) Success = 3, 4, or 5</p>	<p>A total of 50 randomly selected final exams were scored.</p> <table border="1" data-bbox="814 760 1178 1166"> <thead> <tr> <th>Score</th> <th>#</th> <th>%</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1</td> <td>2.0%</td> </tr> <tr> <td>2</td> <td>4</td> <td>8.0%</td> </tr> <tr> <td>3</td> <td>6</td> <td>12.0%</td> </tr> <tr> <td>4</td> <td>21</td> <td>42.0%</td> </tr> <tr> <td>5</td> <td>18</td> <td>36.0%</td> </tr> </tbody> </table>	Score	#	%	1	1	2.0%	2	4	8.0%	3	6	12.0%	4	21	42.0%	5	18	36.0%	<p>90.0% of the students scored 3, 4, or 5 on writing an integral in cylindrical coordinates that gives the volume of a solid.</p> <p>Although the students did well on this task, by the time the final exam rolls around, it is a pretty basic concept. In addition, the application is to the mathematical concept of volume.</p> <p>This assessment led me to more carefully examine the final exam, and I will make changes for the future.</p>	<p>1) Inform department of results</p> <p>2) Include a question on the final exam that addresses this important SLO using an application from a field outside of mathematics.</p>
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MATH 280 INTERMEDIATE CALCULUS, SPRING 2013 SLO ASSESSMENT

FIVE-POINT RUBRIC

http://www.mvhs.fuhssd.org/i-heng_mccomb/par/writing/general/hhsdept/am.htm

5 EXEMPLARY; COMPLETE UNDERSTANDING

- Work at a very high level of proficiency.
- Clear, insightful, thorough, discerning and demonstrates an in-depth understanding.
- Polished, refined and consistently well-crafted.
- Contains no significant factual errors.

4 THOUGHTFUL; CLEAR UNDERSTANDING

- Work at an above average competency level.
- Work shows thoughtful grasp of the content studied.
- Contains illustrative material that is supportive.
- Contains no significant factual errors.

3 DEVELOPING; LITERAL

- Work at an average competency level.
- Demonstrates a grasp of the whole, but is simplistic or literal.
- Some effort evident, yet it does not meet all specifications of the challenge.
- Contains some factual errors that represent a flawed understanding of the topic

2 LIMITED; BARELY ACCEPTABLE

- Work barely meets the basic requirements of the challenge.
- Work shows minimal understanding of the content's key ideas.
- Limited and is carried out with little commitment to precision and excellence.
- Contains significant factual errors.

1 MINIMAL; UNACCEPTABLE

- Work at a very low competency level.
- Little or no understanding of the challenge or the task.
- Disjointed and unorganized.
- Contains many significant factual errors.

Assessment Cycle – Math 280, Intermediate Calculus

All SLOs should be assessed at least once within a three-year cycle. A complete assessment cycle includes: gathering assessment data, analyzing assessment data, sharing results within the department or discipline, and reporting results. In the matrix below, indicate the term in which each of your course SLOs will be assessed (inclusive of the entire assessment cycle).

SLO	Data Gathered	Data Analyzed	Data Shared Improvement Dialogue	Results Reported	Changes Implemented
SLO 1 State and apply basic definitions, properties and theorems of multivariable Calculus.	Fall 2011	Spring 2012	Spring 2012	Spring 2012	Fall 2012
SLO 2 Apply vector operations in two and three dimensions and use vector methods to analyze plane and space curves, and curvilinear motion.	Spring 2012	Fall 2012	Fall 2012	Fall 2012	Spring 2013
SLO 3 Apply standard techniques of multivariable calculus, both differential and integral to solve selected applied problems.	Spring 2013	Fall 2013	Fall 2013	Fall 2013	Spring 2014