Santiago Canyon College

Mathematics Department

Math 280, Intermediate Calculus

Fall 2013

Student Learning Outcome Assessment

Math 280 Intermediate Calculus (COR 2/28/11)

Catalog Entry

Vectors and three-dimensional space, functions of several variables, partial derivatives and multiple integrals. Vector calculus, Green's Theorem, Stoke's Theorem, and the Divergence Theorem.

Course Purpose

To provide the student with skills and concepts of elementary Calculus and Analytic Geometry for success in engineering, natural sciences, and mathematics. The students will also get the experience of doing projects and presentations.

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:___*Fall*____

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
SLO 1 State and apply basic definitions, properties and theorems of multivariable Calculus.	Score #1 (a) and (b) on a random selection of final exams using the attached 5-point rubric. Individual student success = 3, 4, or 5. Course success is 70% of the students receiving 3, 4, 5 on problem #1 (a), (b)	A total of 50 randomly selected final exams were scored. Score # % 1 2 4.0% 2 4 8.0% 3 6 12.0% 4 22 44.0% 5 16 32.0%	88.0% of the students scored 3, 4, or 5 on applying the properties of multivariable calculus to find a directional derivative and magnitude of the gradient vector.	1) Inform department of results. 2) Keep up the good work.

Math 280 Intermediate Calculus, Fall 2013 SLO Assessment

Five-Point Rubric

<http://www.mvhs.fuhsd.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 – Fall 2013

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 2013	Spring 2014	Spring 2014	Spring 2014	Fall 2014
SLO 2 Apply vector operations in two and three dimensions and use vector methods to analyze plane and space curves, and curvilinear motion.	Spring 2014	Fall 2014	Fall 2014	Fall 2014	Spring 2015
SLO 3 Apply standard techniques of multivariable calculus, both differential and integral to solve selected applied problems.	Fall 2014	Spring 2015	Spring 2015	Spring 2015	Fall 2015