

Northern New Mexico College Core Competencies Report

Date Submitted: October 30, 2009

Attachments (check all that apply):

<u> </u>	Area I Communications	<i>Contact person</i>	<u>Dr. Mellis Schmidt</u>
<u>XX</u>	Area II Math-Algebra	<i>Contact person</i>	<u>Dr. Camilla Bustamante</u>
<u> </u>	Area II Math-Calculus I	<i>Contact person</i>	<u>Dr. Camilla Bustamante</u>
<u> </u>	Area II Math-Other Math	<i>Contact person</i>	<u>Dr. Camilla Bustamante</u>
<u> </u>	Area III Laboratory Science	<i>Contact person</i>	<u>Dr. Camilla Bustamante</u>
<u> </u>	Area IV Social & Behavioral Science	<i>Contact person</i>	<u>Dr. Mellis Schmidt</u>
<u> </u>	Area V Humanities & Fine Arts	<i>Contact person</i>	<u>Ms. Donna Winchell</u>

This report fulfills reporting requirements for the New Mexico Higher Education Department.

Attested



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URL for Common Core Assessment Reports: <http://www.nnmc.edu/academics/assessment/>

Comments

In this report, we describe Common Core assessment and program improvement activities that we initiated in 2008-2009 in Area II Mathematics-Algebra courses.

In Fall, 2007, our Student Learning Achievement Committee developed a **five-year data report-**

ing sequence and annual improvement cycle for the assessment of Common Core courses. The five-year reporting sequence is as follows:

- Area I Communications in AY08.
- Area II Mathematics in AY09.
- Area III Lab Sciences in AY10.
- Area IV Social and Behavioral Sciences in AY11, and
- Area V Humanities and Fine Arts in AY12.

Our annual improvement cycle for each area of the Common Core includes the following:

- Align competencies and measures in a faculty workshop in summer.
- Teach assess, and gather data in fall.
- Input findings and analysis in our assessment management system in early spring.
- Develop program improvements (and formalize curriculum changes prior to the development of the College Catalog) in late spring, summer, and the year following.

The Area II data that we present here followed the four steps of the annual improvement cycle in working on Area II Mathematics assessment in 2008-2009. In June, 2008, we took a team of faculty and assessment staff to the summer retreat of the New Mexico Higher Education Assessment Association. There, we revised the outcomes, measures, and instruments in all of our Mathematics courses, including Developmental Math; identified a planning group; and developed action steps for implementing Area II Common Core assessment in 2008-2009.

The MathGenEd planning group included two full-time Math instructors, the chairs of our Math & Science and Developmental Studies Departments, and our Assessment Director. We held faculty workshops prior to and in the middle of the Fall 2008 semester. All of the Math instructors, both full- and part-time, implemented the revised outcomes and measures. Data were gathered at the end of Fall 2008 and analyzed in Spring 2009. The faculty designed and implemented improvements in Spring and Fall 2009. The present report describes these activities.

In Spring 2009, our College created a standing faculty committee to coordinate all aspects of program development and assessment in all five areas of the Common Core.

Core Competencies Assessment 2008-2009: Area II Courses				
Northern New Mexico College		Mathematics Competencies		
<u>State Competencies</u> (NNMC student learning outcomes being assessed)	<u>Assessment Procedures</u> Course and NMCCN	<u>Assessment Results</u>	<u>How Results Will Be Used To Make Improvements</u>	<u>(Optional) Rec's/Priorities</u>
1. Display, analyze, and interpret data. Students will demonstrate familiarity with mathematical concepts (outcome #2).	Courses: MATH 150/1113 MATH 155/1213 Instrument: Departmentally standardized final exams.	Fall 2008 MATH 150-202 • Number students = 11 • Average = 82.2% MATH 150-204 • Number students = 20 • Average = 74.9%	Departmental faculty designed the following improvements based on the analysis of all MATH departmental data, including those for MATH 150 and 155. • Develop curriculum map for all outcomes and measures. A curriculum map for all MATH courses – including MATH 150 and 155 – outcomes and measures will be created. It will spell out the relationship of each outcome and measure to all MATH courses, including MATH 100, 102, 130, 145, 150, 155, and 160. The key will use: i=introduced, r=reinforced, and a=assessed.	
2. Demonstrate knowledge of problem-solving strategies. Students will solve mathematical problems (in basic and consumer math, geometry, and algebra) through analysis, modeling, computing, and interpreting (outcome #3).	Course: MATH 150/1113 Instrument: Rubric (see attached instrument).	Fall 2008 MATH 150-201 • Number students = 11 • Average = 3.48 (on scale of 4-1) MATH 150-202 • Number students = 11 • Average = 3.43 (on scale of 4-1)	• Revise master syllabi and measures. Master syllabi for MATH 150, 155, and all other MATH courses will be revised in light of the new MATH curriculum map. Projects will be introduced in MATH 100, reinforced in MATH 130, and assessed in MATH 150 and 160 only. The objectives (communicate findings, emphasizing beauty of math, and promoting students' confidence in math) will be introduced, reinforced, and assessed primarily in MATH 100, 130, and 150/160 only.	
3. Construct valid mathematical explanations. Students will communicate mathematical findings in oral and written forms (outcome #4).	Course: MATH 150/1113 Instrument: Rubric (see attached instrument).	Fall 2008 MATH 150-201 • Number students = 11 • Average = 3.48 (on scale of 4-1) MATH 150-202 • Number students = 11 • Average = 3.43 (on scale of 4-1)	• Revisit and reinforce use of departmental tests. The Math & Sciences Department Chair will reinforce the use of master syllabi and departmental tests at an orientation of all MATH full- and part-time faculty in August and departmental meetings during the fall and spring semester. Email will also be used. Faculty will revisit the tests to identify specific items pertaining to outcomes 1 (historical concepts) and 2 (math concepts). Also, faculty will address whether	
4. Display an understanding of the development of mathematics. Students will demonstrate familiarity with the historical development of mathematics, including	Course: MATH 150/1113 MATH 155/1213 Instrument: Departmentally standardized final exams.	Test data were not disaggregated for this outcome.		

<p>persons, concepts, and events associated with ancient Greek, Chinese, and Indian mathematics; Islamic, medieval European mathematics, and Native American mathematics; and early modern and contemporary mathematics (outcome #1).</p>			<p>the historical appreciation of math is to be taught in all courses or be limited to specific courses.</p> <p>• Modify the attitudinal survey measure. The survey will be modified to assess more accurately students' confidence and appreciation for math. It will be given to students in MATH 150 and 160 at the end of each fall and spring semester.</p>	
<p>5. Demonstrate an appreciation for the extent, application, and beauty of mathematics. Students will demonstrate appreciation for the beauty of mathematics, and demonstrate confidence and competence in the study and application of mathematics (outcomes #5 & #6).</p>	<p>Course: MATH 150/1113 Instrument: Survey instrument (see attached instrument).</p>	<p>Fall 2008 MATH survey returned from 25 courses (MATH 100-155).</p> <ul style="list-style-type: none"> • Number students = 87 • Appreciating beauty average = 3.28 (on scale of 4-1) • Expressing confidence average = 2.98 (on scale of 4-1). 		

**Northern New Mexico College
PROBLEM SOLVING SKILLS RUBRIC**

Student _____ Course _____ Date _____

Outcome: Students will be able to solve mathematical problems (in basic and consumer math, geometry, and algebra) through analysis, modeling, computing, and interpreting.

Performance area	Rating = 4 Commendable	Rating = 3 Satisfactory	Rating = 2 Needs improvement	Rating = 1 Unacceptable	Score/ comments
Analyzing.	Student states the problem clearly and identifies underlying issues.	Student adequately defines the problem.	Student fails to define the problem adequately.	Student does not identify the problem.	
Calculating.	Student collects information from multiple sources and analyzes the information in-depth.	Student collects adequate information and performs basic analyses.	Student collects inadequate information to perform meaningful analyses.	Student collects no viable information.	
Interpreting findings.	Student provides a logical interpretation of the findings and clearly solves the problem, offering alternative solutions.	Student provides an adequate interpretation of the findings and solves the problem, but fails to provide alternatives.	Student provides an inadequate interpretation of the findings and does not derive a logical solution to the problem.	Student does not interpret the findings/reach a conclusion.	
Comments					
Overall Score					

**Northern New Mexico College
MATH SURVEY**

Please fill out this survey. Circle one number for each statement that best describes how you feel. Your responses will help us improve our mathematics programs. Thank you!

	STRONGLY AGREE	AGREE	DISAGREE	STRONGLY DISAGREE
I am confident that I can get good grades in mathematics.	4	3	2	1
Mathematics is not important in everyday life.	4	3	2	1
Doing math lets me think creatively.	4	3	2	1
I almost always feel stressed in a math class.	4	3	2	1
Math courses will be very helpful no matter what my major is.	4	3	2	1
There is usually more than one way to solve a math problem.	4	3	2	1
Math helps me develop my mind and teaches me to think.	4	3	2	1
An understanding of math is needed by artists and writers as well as scientists.	4	3	2	1
I am good at math.	4	3	2	1
I am bad at math.	4	3	2	1
I get more nervous before a math test than before tests in other subjects.	4	3	2	1
Most people should study some mathematics.	4	3	2	1

Please tell us in the space below [not shown here] anything else about your experiences learning mathematics at Northern New Mexico College. Use the other side if you run out of space.