Course Outcomes Guide (COG)

Directions: Please complete this form to document your progress toward improving student learning. For each item, indicate your progress and your anticipated next steps. Thank you!

Course Title: MAT 098 Elementary Algebra   Date: June 2013

Course Team: Math Faculty

Expected Learning Outcomes

STUDENT LEARNING OUTCOMES:

Upon successful completion of this course students will be able to:

1. Use computational techniques and algebraic skills essential for success in an academic, personal, or workplace setting (Computational and Algebraic Skills).

2. Use visualization, spatial reasoning, as well as geometric properties and strategies to model and solve problems (Geometric Skills).

3. Collect, organize, and display data as well as use appropriate statistical methods to analyze data and make inferences and predictions (Statistical Skills).

4. Use technology, where appropriate, to enhance and facilitate mathematical understanding, as well as an aid in solving problems and presenting solutions (Technological Skills).

5. Communicate and understand mathematical statements, ideas and results, both verbally and in writing, with the correct use of mathematical definitions, terminology and symbolism (Communication Skills).

6. Work collaboratively with peers and instructors to acquire mathematical understanding and to formulate and solve problems and present solutions (Collaborative Skills).

Assessment (How do or will students demonstrate achievement of each outcome? Please attach a copy of your assessment electronically.)

All MAT 098 Pre-Algebra students complete the same homework, quizzes, and tests. We use MyMathLab to run the course and all instructors are using the same assignments. Additionally, all students take a five question pre-test and take the same five questions again as a post-test that is incorporated into the final exam.

Validation (What methods have you used or will you use to validate your assessment?)

We are using a 2-point rubric to grade the five question pre/post-test and all other tests in the course, which gives a total of 10 points.

Results (What do your assessment data show? If you have not yet assessed student achievement of your learning outcomes, when is assessment planned?)

There was a total of 307 MAT 098 students in the Fall 2012 and Spring 2013 semesters, but there were 132 students who did not take BOTH assessments (pre- and post-tests). There were 93 blanks on the post-test by students who walked away and earned an F for the course. There were 22 students who withdrew from the course. It appears that 17 students did not take the pre-test.

Of the 175 students who took both assessments only 12 did not have an increase in learning. These students had a lower (or the same) post-test score. It appears that students are learning something by taking MAT 098. There were 11 students that had an increase of 7 or more points from the pre-test, which is quite impressive. The data tables are attached.

Another thing that we looked at was post-test score versus course grade. The post-test has a total of 10 points and the following ranges were created 0-3.5, 4-5.5, 6-7.5, 8-10 to compare with course grade. This was an attempt to see if students get similar post-test and course grades. A graph of this data is attached.

There is a lot to be digested when looking at this graph, but it seems that students who do well on the post-test do well in the course. There were no A students in the 0-3.5 range and no F students in the 8-10 range. Post-test scores seem somewhat indicative of course grade. Further study and fine tuning will be needed in the future if we want to look at this type of comparison, but it is quite intriguing.

Follow-up (How have you used or how will you use the data to improve student learning?)

It appears that students should have an increase from the pre-test to the post-test by learning something in the course. Perhaps it is unnecessary to give a pre-test and the focus should be on other aspects of the course like the final exam and learning activities in the classroom.

We will be collecting more data in future semesters to better match our student learning outcomes. The new data may include a grade for working collaboratively, as well as communicating mathematical ideas verbally and in writing.

Moving forward we may want to continue looking at trends like post-test score versus grade in the course. This may be a good indicator to tell us if our final exam is representative of what the students should learn by taking the course. We may find that we should make changes to the final exam if post-test scores and course grades do not "match up".

Budget Justification (What resources are necessary to improve student learning?)

No requests at this time.

Instructor: _____   Name: _____

Course Section: _____   Student ID: _____

Semester: _____

Pre/Post-Assessment for MAT 098 Pre-Algebra

Please answer the following questions. Do your work in the space provided and place your final answer in the answer column.

Answers:

1. $ $\underline{}$ Find the average amount of unclaimed prizes in dollars and write your answer in standard notation.

State	Unclaimed Prizes (in millions of dollars)
New York	73.2
Texas	58.7
Florida	48.1
Ohio	33.5
California	29.6

Perimeter = _____

2. Area =_____   The state of Colorado is roughly the shape of a rectangle whose dimensions are 380 miles by 280 miles. Find the perimeter and area. Use correct units.

280 miles

380 miles

3. _____ Simplify. Write your answer as an integer.

$$3 \cdot 4 + 2^3 - (3^2 - 12 \div 2)$$

4. _____ Simplify. Write your answer as a simplified fraction
(proper, improper, or mixed).

$$\frac{1}{3} - 4\frac{1}{2} \cdot \frac{6}{7} \div \frac{9}{7} + \frac{2}{5}$$

5. _____ A lawn requires 300 gallons of water for every 700 ft^2.
What is the rate in gallons per square feet?
Round your answer to the nearest tenth. Use correct units.

Grading Rubric for Developmental Mathematics

This general scale is to be used for all Tests and Final Exams in MAT 098, MAT 099, and MAT 100.

All questions are worth 2 points.

2 points	Answer is completely correct, including any necessary units.
1.5 points	Work is approximately 75% correct. Examples include: - missing a negative - missing units - simple arithmetic errors (unless arithmetic is what is being tested!)
1 point	Work is approximately 50%-75% correct.
0.5 point	Work is approximately 25%-50% correct AND some basic understanding of the concept is demonstrated.
0 points	Work is roughly less than 25% correct OR no basic understanding is demonstrated.

MAT 098 percent increase for Fall 2012 (pre/post-test)

12/FA Grade Distribution

Count of Register	Column Labels					
Row Labels	A	B	C	F	W	Grand Total
-1.5			1			1
-1				1		1
0	2	1		2		5
0.5		1	3			4
1			2			2
1.5		2	3	2		7
2			2	2		4
2.5		1				1
3	1	1	6	2		10
3.5	2	2	1	1		6
4	2	2	1	1		6
4.5	1	3	1			5
5	2	2				4
5.5	4	3	2	1		10
6	3	2	1	1		7
6.5	1					1
7	3					3
7.5			1	1		2
8			1			1
(blank)	4		4	48	16	72
Grand Total	25	23	28	60	16	152

MAT 098 percent increase for Spring 2013 (pre/post-test)

13/SP Grade Distribution

Count of Register	Column Labels					
Row Labels	**A**	**B**	**C**	**F**	**W**	**Grand Total**
-2			2			2
-0.5				2		2
0			1			1
0.5	1	1		1		3
1		1		3		4
1.5			1	1		2
2	3	8	1	1		13
2.5	2	2	3	1		8
3	3	1	4	2		10
3.5	3	2	3			8
4	4	2	1			7
4.5	1	3	2			6
5	5	2	2			9
5.5	1	2	2			5
6	3	3	1			7
6.5	2		1			3
7	1					1
7.5		1				1
8		1				1
8.5		1				1
9.5		1				1
(blank)	2		2	50	6	60
Grand Total	31	34	23	61	6	155

Post-Test Score vs Course Grade, 12/FA and 13/SP