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 100 Intermediate Algebra** **Date: June 2014**

Course Team: **Carrie Hawbecker, Lead Instructor**

Expected Learning Outcomes

STUDENT LEARNING OUTCOMES IN FOR MAT 100, Intermediate Algebra

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 solve problems (Geometric Skills).

3. Use different methods to solve quadratic equations and apply the tactics to applications (Modeling Skills).

4. 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).

5. 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.)

See attachments

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

We use MyMathLab so all students are completing the same homework, quizzes, and tests. We are using a 2-point rubric to grade the five question pre/post-test which gives a total of 10 points. All of the tests including the final exams use the 2-point rubric. There is a second 2-point rubric for the three critical thinking essay questions. Also, a collaboration group project is used. It has a 25 point grading rubric. Each class group creates, solves and presents an application problem.

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

The results from the SLOA pre-test and post-test were recorded via an Excel file sent to each instructor. The average change was about 5.89. This show the students were gaining mathematical skills.

The success rate of the students in summer 2013 was 60.0%, fall 2013 was 72.3%, and spring 2014 was 58.3%.

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

In fall 2014, we will be changing to a new curriculum to help the students be better prepared for College Algebra. The SLOA objectives are also being changed.

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

No requests at this time.

Pre/Post Test

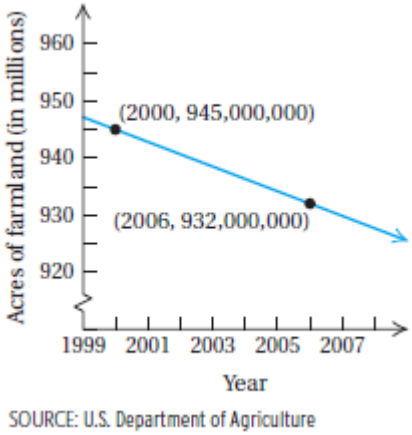
1. _____ Find the equation of a line containing the point (8, 5) and perpendicular to the line $2x+3y=7$

Put your answer in the y = mx + b form

2. _____ Solve the system of equations $\begin{cases} 2x+3y=11 \\ 4x-5y=-11 \end{cases}$

Write your answer as an ordered pair

3. _____ The amount of farmland in the US, in the millions of acres, is represented in the following graph. Find the rate of change (slope) of the number of acres with respect to time.
Round to the nearest ten thousand



SOURCE: U.S. Department of Agriculture

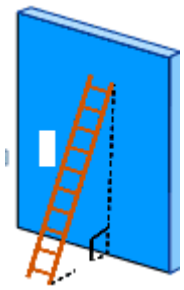
4. _____ Solve using the Quadratic Formula.

$11x^2 - 9x = 1$

Give the exact answer using radicals as needed

5. _____ A 26-foot ladder is placed against a vertical wall, with the bottom of the ladder standing on level ground 10 feet from the base of the building. How high up the wall does the ladder reach?

Use the Pythagorean Theorem



Essay Questions

42.) This problem has errors. Describe in words why the answer is not correct.

A rectangular table is two times as long as it is wide. If the area is 18 ft^2, find the **width** of the table.

Area = length • width

2w

w width

$$A = l \bullet w$$
$$l \bullet w = A$$
$$2w \bullet w = 18$$
$$2w^2 = 18$$
$$2w^2 - 18 = 0$$
$$2(w^2 - 9) = 0$$

$$w^2 - 9 = 0$$
$$(w+9)(w-9) = 0$$

$w+9=0$ $\qquad$ $w-9=0$

$w+9-9=0-9$ $\qquad$ $w-9+9=0+9$

$w=-9$ $\qquad$ $w=9$

The width of table is –9 feet and 9 feet.

Describe in words why the answer is not correct.

43. Give an example of applications of quadratic equations or quadratic functions. Describe the application.

44. Explain the mathematical concept:

How do you factor a trinomial? Do not only show your work. **Explain the steps** to factoring this type of trinomial.

Explain how to factor $2x-4x^2+30$

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.
1.75 points	Work correct but one minor error was made (unless the problem is testing one of these concepts – mostly in 098): • missing a negative • missing units • simple arithmetic errors
1.5 points	Work is mostly correct (75% or greater) but there are two or more minor errors OR one major error.
1 point	Work is approximately 50% correct.
0.5 point	Work is approximately 25% 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.

Rubric for grading Essay/Concept Questions

Students can earn up to 2 points for each essay/concept question on the final exam. Points are earned by meeting the following criteria:

1 point	for accurate explanation of situation presented in problem
0.5 point	for use of correct mathematical terminology and symbolism
0.5 point	for use of complete sentences

Grading Rubric for the Collaboration Assignment

Area	Possible Points	Assigning Points	Description
Formulate problems	5 points	All students in the group should probably earn the same score for this area.	Students should formulate their own application problems **Examples**: groups could create their own systems of equations application problem, groups could collect their own set of data for mean, median, mode, etc.
Solve problems	5 points	All students in the group should probably earn the same score for this area.	Students should solve the problems they formulated.
Present solutions	10 points	Students should receive a score based on their own performance.	Each student **must** participate in the presentation of the group's work. Presentations do *not* need to be long, elaborative affairs.
Collaboration	5 points	Students should receive a score based on their own performance.	Assign points to each student based on their participation and collaboration efforts within their group.

Total: 25 points

MAT-100 SLOA Report

	Course Results					Common Assessments					
Term	# of Students	Success	Walk-Away F	With-drawal	Mean GPA	PreTest Avg	PostTest Avg	Avg Change	Course	GenEd	Program
12/SP	n = 435	65.7% n = 286	11.7% n = 51	5.7% n = 25	2.10	---- out of 10	---- out of 10	----	----	NA	NA
12/SU	n = 119	70.6% n = 84	10.1% n = 12	8.4% n = 10	2.48	1.80 out of 10	7.94 out of 10	6.13	----	NA	NA
12/FA	n = 535	70.7% n = 378	15.7% n = 84	3.2% n = 17	2.11	1.28 out of 10	6.75 out of 10	5.28	----	NA	NA
13/SP	n = 483	63.6% n = 307	17.4% n = 84	4.6% n = 22	1.91	1.25 out of 10	6.96 out of 10	5.75	----	NA	NA
13/SU	n = 120	60.0% n = 72	0.8% n = 1	1.7% n = 2	1.84	1.15 out of 10	6.52 out of 10	5.42	----	NA	NA
13/FA	n = 566	72.3% n = 409	6.7% n = 38	4.1% n = 23	2.13	1.19 out of 10	7.25 out of 10	6.03	3.01 out of 6	NA	NA
14/SP	n = 343	58.3% n = 200	15.7% n = 54	6.4% n = 22	1.77	1.11 out of 10	6.90 out of 10	5.76	2.83 out of 6	NA	NA

MAT-100 AY 2013-2014

	Total	A	B	C	D	F	WF	W/I/AU	Success	Completer Success
2013-2014 Summary	1034	16.2% (n=168)	23.7% (n=245)	26.2% (n=271)	0.1% (n=1)	28.5% (n=295)	9.2% (n=95)	5.2% (n=54)	66.2% (n=684)	77.3%

Full-Time Faculty vs Adjunct Faculty

	Total	A	B	C	D	F	WF	W/I/AU	Success	Completer Success
Full-time	461	15.6% (n=72)	23.2% (n=107)	26.2% (n=121)	0.2% (n=1)	29.7% (n=137)	11.3% (n=52)	5.0% (n=23)	65.1% (n=300)	77.7%
Adjunct	573	16.8% (n=96)	24.1% (n=138)	26.2% (n=150)	0.0% (n=0)	27.6% (n=158)	7.5% (n=43)	5.4% (n=31)	67.0% (n=384)	77.0%