

Course Outcomes Guide (COG)

Course Title: MAT 114 – Applied Algebra

Date: May 2013

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Expected Learning Outcomes

1. Develop improved arithmetic skills.
2. Develop improved algebraic skills.
3. Use algebra to solve application problems.
4. Develop mathematical models for real-world data and problems.
5. Solve problems by working constructively in a group setting.
6. Use technology as a tool in the problem-solving process.
7. Use proper terminology and units to communicate results.

Assessment

- Outcomes 1 and 2 are assessed using a pre-post test.
- Outcomes 3, 4, 6, and 7 will be assessed using a common portion of the final exam.

Validation

- Now that the course has run a few times, I will comb through sources including retired Praxis and SAT Math Subject tests for problems appropriate to the course material to use to assess outcomes 3, 4, 6, and 7.

Results

- Spring of 2013 is the first semester that we really had decent enrollment in the course and there is a clear increase in the students' scores from the pre-test to the post-test.

Follow-up

- The post-test data still shows students having difficulty with problems containing fractions and, most recently, equations. Several assignments will be developed and assigned to students to complete in the Learning Support Center with the help of a tutor.

Budget Justification

- There may be some cost associated with getting the sources needed to include more applications in the course.

SLOA Data

	FA 2011	SP 2012	SP 2013
# Active students	6	6	21
% W	0	0	8.7
*% walk-away Fs No final exam/grade = F	0	0	9.5
% Success (A,B,C)	100	83.33	78.3
General Education SLOA	NA	63	76
Mean Pre-test Score (out of 34)	25.2	27.3	20.5
Mean Post-test Score (out of 34)	27.7	27.7	28.7
Mean course grade	3.17	3.17	2.81
Item Analysis Weakest Content Areas	Fractions	Fractions	Equations

Pre/Post-Test

1. Compute each of the following. Simplify your answer if possible. (2 points each)

a) $-2 \cdot 5$

b) $4 - (-2)$

c) $(-5)(-8)$

d) $300 - 4(10 - 2)$

e) $998 - 1210$

f) $\frac{3}{4} + \frac{2}{3}$

g) $3 - 5[2 + 3(5 + 1)] - 4$

h) $40 - 2 \times (3 + 1)^2$

i) $25 - 4 \div 2 \times 5$

Pre/Post-Test Continued

2. Simplify each of the following as much as possible. Remove all parentheses and combine all like terms. (2 points each)

a) $5x - 2(4 - 3x)$

b) $(4x - 3)(2x + 1)$

c) $(3x^2y^4)(8x^3y)$

d) $\frac{75x^4}{123x^5}$

3. Solve each of the following equations for x . (2 points each)

a) $2x + 5 = -7$

b) $3x - 7 = 2x + 11$

c) $-2x + 5(x - 1) = -3 + 2(1 - x)$

d) $\frac{x}{4} - \frac{2x + 1}{6} = \frac{5}{12}$