

## Course Outcomes Guide (COG)

**Course Title:** MAT 161 - Precalculus

**Date:** Fall 2015

**Course Team:** Jennifer Szczesniak

### Expected Learning Outcomes

#### GENERAL EDUCATION

**Upon successful completion of this course, a student should be able to:**

1. Apply mathematical methods involving arithmetic, algebra, geometry, and graphs to solve problems.
2. Represent mathematical information and communicate mathematical reasoning symbolically and verbally.
3. Interpret and analyze numerical data, mathematical concepts, and identify patterns to formulate and validate reasoning.

#### COURSE LEARNING OUTCOMES (SLO)

**Upon successful completion of this course, a student should be able to:**

1. Understand the relationship between an equation and its graph.
2. Develop an improved understanding of exponential, logarithmic, and trigonometric functions.
3. Demonstrate the ability to use identities to simplify or rewrite an expression.
4. Solve application problems involving polynomial, exponential, logarithmic and trigonometric functions and systems of equations.
5. Effectively work in a group setting to solve problems.
6. Use technology (graphing calculators, scientific calculator, etc.) to assist in the problem solving process.
7. Use proper terminology to communicate results or to describe how the results were obtained.

### Assessment

A ten question multiple-choice assessment tool was developed using retired questions from the Praxis and SAT exams.

### Validation

Since we chose questions from retired exams, we have national data to compare our scores with.

### Follow-up

The assessment for MAT 161 has been anything but predictable. Students completing in the spring semester seem to do better than those completing in fall, both with course grade and with the assessment tool. It may be worthwhile to compare course history reports for fall and spring students to see if there is a difference in the background of these students.

In 14/FA the hybrid course was first offered. As it is a hybrid course, we used an online homework management system (WileyPlus). Student performance on the assessment tool is higher, sometimes slightly and sometimes significantly, than the lecture section that was not using the online homework. By 16/SP all sections will be using an online homework system.

The one thing common for the past three semesters was the weakest content area was SLO 3 - demonstrate the ability to use identities to simplify or rewrite an expression. This is something that students struggle with every semester. The development of a supplemental assignment to be done in the Learning Support Center may benefit students and increase the scores for this outcome.

### Budget Justification

No budget resources are immediately anticipated.

### SLOA Results

	13/FA	14/SP	14/FA	15/SP
# Active students	39	46	52	46
% W	17.9	2.2	1.9	6.5
*% walk-away Fs No final exam/grade = F	12.8	4.3	7.7	15.2
% Success (A,B,C)	53.8	67.4	65.4	71.7
Common Assessment Score (out of 10)	7.50	7.65	7.33	8.26
Benchmark Score	7.79	7.79	7.79	7.79
Mean course grade	2.09	2.42	2.10	2.56
Item Analysis <b>Weakest Content Areas</b>	SLO 1	SLO 3	SLO 3	SLO 3

\*% Walk-away Fs = Did not take the final exam and received a grade of F.