

Course Outcomes Guide (COG)

Course Title: MAT 161 - Precalculus

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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.

Results

The results for this assessment are still surprising me. Our scores are still near or above our benchmark. The previous trend of spring students performing at a higher level has been broken. The weakest outcome has also shifted, perhaps because we improved our techniques on outcome 4. We did have a drop in success rates during 16/SP and 16/SU. There are several factors that could be in play here. One that stands out is that these were the first batch of students that were enrolled using the lower SAT cut-off of 500 in place of 550.

Follow-up

During 16/SP, 16/FA and 17/SP all students used the same online homework program to supplement written assignments. These online assignments appear to have had little effect on assessment or student success. These online homework assignments will be discontinued for the 17/FA and reassessed as new low-cost tools become available.

Before 17/FA and 18/SP I will meet with all instructors for MAT 161 and review online tools for addressing graphing (SLO 1). I will also look for interesting applications of this to include in classroom examples and homework exercises.

Budget Justification

No budget resources are immediately anticipated.

SLOA Results

	14/FA	15/SP	15/SU	15/FA	16/SP	16/SU	16/FA	17/SP
# Active students	52	46	18	61	39	22	49	47
% W	1.9	6.5	16.7	4.9	7.7	13.6	2.0	4.3
*% walk-away Fs	7.7	15.2	0	8.2	20.5	4.5	2.0	6.4
% Success (A,B,C)	65.4	71.7	83.3	77.0	56.4	45.5	81.6	80.9
Common Assessment Score (out of 10)	7.33	8.26	NA	7.21	7.77**	8.12	8.43**	7.61
Benchmark Score	7.79	7.79	7.79	7.79	7.79	7.79	7.79	7.79
Mean course grade	2.10	2.56	3.13	2.71	2.08	1.53	2.65	2.67
Item Analysis Weakest Content Areas	SLO 3	SLO 3	NA	SLO1	SLO4	SLO1	SLO1	SLO1

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

** Assessments were only given to one section this semester due to a communication error.