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Course Outcomes Guide (COG)
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Course Title: MAT 102, Trigonometry   **Date: Fall 2016**

Course Team: Christopher J. Lewis

Expected Learning Outcomes

STUDENT LEARNING OUTCOMES:
Course outcomes:
Upon successful completion of this course students will be able to:
1. Use computational techniques and algebraic skills essential for the study of exponential and trigonometric functions, as well as their inverses.. (Computational and Algebraic Skills)
2. Use visualization, spatial reasoning, as well as geometric properties and strategies to model and solve problems involving exponential and trigonometric functions, as well as their inverses.. (Geometric Skills)
3. Critically analyze and construct mathematical arguments. (Proof and Reasoning)
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)

General Studies Outcomes:
Upon successful completion of this course students will 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 CONTENT OBJECTIVES:
In this course students will acquire:
1. An understanding of exponential, logarithmic, trigonometric and inverse trigonometric functions, as well as their applications and their graphs.
2. The ability to use inverse functions to solve equations, specifically to solve exponential and trigonometric equations.
3. An understanding of angle measure in degrees and radians, of the unit circle as it relates to the trigonometric functions, and of right triangle trigonometry.
4. Knowledge of trigonometric identities and experience deriving identities.

5. An understanding of polar coordinates, equations and graphs, the complex plane and DeMoivre's Theorem.

Assessment (How do or will students demonstrate achievement of each outcome? Please attach a copy of your assessment electronically.)
The grade is based on Homework, 20%, the 2 lowest homework scores are dropped; Quizzes, 15%, the 2 lowest quizzes are dropped; Five Chapter Exams, 48%; and the Final Exam, 17%.

- A = 90% - 100%
- B = 80% - 89%
- C = 70% - 79%
- D = 60% - 69%
- F = 0% - 59%

The homework is completed online. There is a 5% per day reduction in the grade for homework problems completed after the due date.

The quizzes are completed online. There are up to 3 attempts on each quiz. Only the highest score counts. The final attempt must be completed by the due date.

The exams are taken in the LRC Test Center on the third floor. There is only one attempt on the exams and they must be completed by the due date.

All coursework and assessments are delivered and completed through the MyMathLab software. In addition, all students complete the math department 8 question General Education Assessment.

Validation (What methods have you used or will you use to validate your assessment?)
A rubric is used to grade the 5 question common assessment. Comparisons to the benchmark standard of 70% are then made for each question. Each question is linked, in direct correlation by number, to each of the 5 student learning outcomes.

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

Fall 2016					
Student Learning Outcome	1	2	3	4	5
Mean Score	75%	100%	100%	75%	100%

The 5 students completing the class took the 5 question common assessment with mean scores provided in the table above. The scores were above average to superior, with the exception of outcome 5, where the score was slightly above the 70% benchmark. This indicates that this class was clearly above average, a result consistent with the grades earned, and able to achieve all learning outcomes.

Follow-up (How have you used or how will you use the data to improve student learning?)
The results indicate that the modifications that were made to make MAT 102 compatible with the prerequisite of MAT 101 were successful. The use of the same text and software for both courses has helped students achieve the learning outcomes. It should be noted that this was a relatively small class with several students being high achievers.

Budget Justification (What resources are necessary to improve student learning?)
MAT 102 students use the Student Learning Center (SLC). It would be advisable to have a SLC budget to insure that there is a math instructional assistant during all hours the SLC is open.
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Course: MAT 102   **SLOA Data**
Faculty Team

	FA 2010	SP 2011	SU 2011	FA 2011	SP 2012	SU 2012	FA 2012	SP 2013	SP 2014	SP 2015	FA 2015	SP 2016
# Active students	29	21	13	22	17	17	30	13	4	5	8	6
%W	6.9	19	7.7	18.2	5.9	0	6.7	15.4	25	20	12.5 n=1	16.7 n=1
*% walk-away Fs No final exam/grade = F	6.9	14.3	0	9	5.9	11.8	10	0	0	0	12.5 n=1	0
% Success (A,B,C)	68	52.4	76.9	59.1	58.8	76.5	71.4	54.5	25	80	75.0	83.3
Common Comprehensive Final Exam Score				76	77.5		81	88.3	74.2	86.4	75.7	88.6
Mean course grade	2.3	2.18	2.75	2.28	1.75				1.00	3.00	2.71	3.60
Item Analysis **Weakest Content Areas**				SLO 4	SLO 4		SLO 4	SLO 4	SLO 4	SLO 4	SLO 1, 2	none

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

Course: MAT 102　　　　　　　　**SLOA Data**
Faculty Team

	FA 2016	SP 2017										
# Active students	5											
%W	0											
*% walk-away Fs No final exam/grade = F	0											
% Success (A,B,C)	100											
Common Comprehensive Final Exam Score	93.1											
Mean course grade	4.0											
Item Analysis **Weakest Content Areas**	none											

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