

**Angelina College**  
**Division of Science and Mathematics**  
**MATH 2412 – Precalculus**  
**Instructional Syllabus – Fall 2016 (MW)**

**I. BASIC COURSE INFORMATION:**

- A. Precalculus – MATH 2412 – In-depth combined study of algebra, trigonometry, and other topics for calculus readiness. Students are required to have a graphing calculator. Four lecture hours each week.
- B. This course is intended for students who have Precalculus as a required course in their program of study. It is aimed at building a strong mathematical foundation for STEM (Science, Technology, Engineering, and Mathematics) majors.
- C. Instructor: Julie Mays  
Office Location: S-113B  
Office Hours: Posted on office door  
Phone: 936-633-5460  
E-mail Address: jmays@angelina.edu

**II. INTENDED STUDENT OUTCOMES:**

**A. Core Objectives Required for this Course**

- 1. Critical Thinking:** to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
- 2. Communication:** to include effective development, interpretation and expression of ideas through written, oral and visual communication
- 3. Empirical and Quantitative Skills:** to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions

**B. Course Learning Outcomes for all Sections**

1. Demonstrate and apply knowledge of properties of functions.
2. Recognize and apply algebraic and transcendental functions and solve related equations.
3. Apply graphing techniques to algebraic and transcendental functions.
4. Compute the values of trigonometric functions for key angles in all quadrants of the unit circle measured in both degrees and radians.
5. Prove trigonometric identities.
6. Solve right and oblique triangles.

**III. ASSESSMENT MEASURES**

**A. Assessments for the Core Objectives**

- 1. Critical thinking:** Students will answer multiple choice questions to show creative thinking, innovation, and analyze and evaluate arguments. The AC Critical Thinking Rubric will be used.
- 2. Communication:** Students will answer multiple choice questions to show communication skills. The AC Communication Rubric will be used to assess written, oral, and visual communication skills.
- 3. Empirical and Quantitative Skills:** Students will answer multiple choice questions to calculate, analyze, and summarize data. The AC Empirical and Quantitative Skills Rubric will be used.

## **B. Assessments for Course Learning Outcomes**

1. Students will demonstrate and apply knowledge of properties of functions within embedded test questions.
2. Students will recognize and apply algebraic and transcendental functions and solve related equations within embedded test questions.
3. Students will apply graphing techniques to algebraic and transcendental functions within embedded test questions.
4. Students will compute the values of trigonometric functions for key angles in all quadrants of the unit circle measured in both degrees and radians on one or more quizzes.
5. Students will prove trigonometric identities within embedded test or quiz questions.
6. Students will solve right and oblique triangles within embedded test questions.

## **IV. INSTRUCTIONAL PROCEDURES:**

The course is taught using a combination of lectures, discussions, and practice exercises. The amount of time spent using any one technique will vary from class to class and from lesson to lesson as determined to be most appropriate by the instructor.

## **V. COURSE REQUIREMENTS AND POLICIES:**

### **A. Required Textbooks and Recommended Readings, Materials and Equipment**

1. Precalculus Open Stax College is the required textbook. This text is available free to use online, as a low-cost print edition, or as an e-book. The address to assess and choose among these options is: <https://openstax.org/details/precalculus> .
2. Graphing calculator – A TI (Texas Instruments) graphing calculator is required or highly recommended. The TI-84 graphing calculator will be used by the instructor in classroom demonstrations.

### **B. Course Policies – This course conforms to the policies of Angelina College as stated in the Angelina College Handbook.**

1. **Academic Assistance** – If you have a disability (as cited in Section 504 of the Rehabilitation Act of 1973 or Title II of the Americans with Disabilities Act of 1990) that may affect your participation in this class, you should see Sellestine Hunt – Associate Dean of Student Services, Student Center, Room 200. At a post-secondary institution, you must self-identify as a person with a disability; Ms. Hunt will assist you with the necessary information to do so. To report any complaints of discrimination related to disability, you should contact Mr. Steve Hudman - Dean of Student Affairs, Student Center, Room 101, (936)633-5292 or by email [shudman@angelina.edu](mailto:shudman@angelina.edu)
2. **Attendance** – Attendance is required as per Angelina College Policy and will be recorded every day. Any student with three (3) consecutive absences or four (4) cumulative absences may be dropped from the class. Records will be turned in to the academic dean at the end of the semester. Do not assume that non-attendance in class will always result in an instructor drop. **You must officially drop a class or risk receiving an F.** This is official Angelina College Policy.
3. **Additional Policies Established by the Instructor**

#### **MAKE-UP EXAMS**

No make-up exams will be allowed. The grade on the final exam can replace any one missed test or the lowest test grade during the semester.

## STUDENT CONDUCT

A positive environment for learning will be maintained by students being courteous to each other and to the instructor. Eating, drinking, sleeping, and distracting conversations during lecture will not be allowed. Repeated tardiness will result in warning; if continued this will result in further action depending on upon seriousness of problem. Regular attendance is also expected as per college policy.

Cheating on tests is not tolerated as per Angelina College policy and may result in expulsion from the course. Plagiarism is not tolerated and will result in a zero for any assignment in which it is detected.

## CELL PHONES

**Cell phones and pagers must be turned off or on the silent mode.** Students may not have access to cell phones during quizzes and/or tests.

## VI. COURSE OUTLINE:

See attached SUPPLEMENTAL ASSIGNMENTS

## VII. EVALUATION AND GRADING:

1. Your grade will be assessed by:
  - a. Four tests valued at 100 points each for a total of 400 points.
  - b. Homework, quizzes, activities, etc. valued at 100 points.
  - c. Projects may be assigned and turned in during the semester valued at TBA points.
  - d. A comprehensive final examination valued at 100 points.

NOTE: TI-89, TI-92, or any calculator with CAS-software may not be used on the final.

2. Those who drop the course on or before September 9<sup>th</sup> will not receive a grade for the class. Those dropping between September 9<sup>th</sup> and November 7<sup>th</sup> (inclusive) will receive a W in the course. November 7<sup>th</sup> is the last day for dropping a course.

***The instructor may modify the provisions of the syllabus to meet individual class needs by informing the class in advance as to the changes being made***

**Math 2412 Assignments**

<u>Lesson</u>	<u>Date</u>	<u>Sections</u>	<u>Pages</u>	<u>Description</u>	<u>Problems</u>
1	08/24	5.1	440-456	Angles	1-5,7,10,11,16,20,22,23,27,31,35,39,41,45,47,48,51,52,56,58,66,72,74
2	08/29	5.2	457-472	Unit Circle: Sine and Cosine Functions	1-5,10,13,16,19,24,25,30,33,36,41,44,49,50,52,54,64,71,82,86,96,102,104
3	08/31	5.3	473-485	The Other Trigonometric Functions	1-5,18,20,25,28,32,37,38,41,44,48,50,52,53,58,61,73,75
4	09/07	5.4	486-497	Right Triangle Trigonometry	1-5,6-16even,23-28,30,32,38,42-50even,52,56
5	09/12	Review			
<b>6</b>	<b>09/14</b>	<b>Exam #1</b>		<b>Exam #1: Sections 5.1 – 5.4</b>	
7	09/19	6.1	506-522	Graphs of the Sine and Cosine Functions	1-5,7,9,11,19,22-30even, 31-37
8	09/21	6.2	523-540	Graphs of the Other Trigonometric Functions	1-12,27,31,38,40,46,49,57
9	09/26	6.2	523-540	Graphs of the Other Trigonometric Functions	
10	09/28	6.3	541-551	Inverse Trigonometric Functions	1-7,9,11,13,14,17,18,22,24-36even,42,48,53,54,61
11	10/03	Review			
<b>12</b>	<b>10/05</b>	<b>Exam #2</b>		<b>Exam #2: Sections 6.1 – 6.3</b>	
13	10/10	7.1	560-569	Solving Trigonometric Equations with Identities	4, 5-15odd,16,20,24,28,29-33,35,39,40
14	10/12	7.2	570-583	Sum and Difference Identities	4-18even,20,24,26,32,42-50even,53
15	10/17	7.3	584-595	Double-Angle, Half-Angle, and Reduction Formulas	5,7,9,12,13,19,22,25,27,31,33,39,48,54,56,58,60
16	10/19	7.4	596-602	Sum-to-Product and Product-to-Sum Formulas	5,9,12,16,18,23,25,27,31,32,38,40,51,61
17	10/24	7.5	603-616	Solving Trigonometric Equations	1,5,9,11,14,21,23,28,31,37,40,46,48,50,57,64,70,81,84,93,95,99,102,105
18	10/26			Activity	
19	10/31	Review			
<b>20</b>	<b>11/02</b>	<b>Exam #3</b>		<b>Exam #3: Sections 7.1 – 7.6</b>	
21	11/07	8.1	644-657	Non-right Triangles: Law of Sines	1-5,7,11,15,19,23,25,27,31,35,39,43,47,51,55,59,65,68,75
22	11/09	8.2	658-669	Non-right Triangles: Law of Cosines	1-5,7,11,15,19,23,27,31,35,39,43,47,53,55,61,66,69,74,77
23	11/14	8.3	670-680	Polar Coordinates	1,3,5,7,9,13,17,21,25,29,33,37,40,42,47,51,57,59,63,65
24	11/16	8.4	681-696	Polar Coordinates: Graphs	1,3,7,11,17,21,25,34,44,48
25	11/21	8.5	697-707	Polar Form of Complex Numbers	1-4,6,10,13,16,17,21,25,29,33,47,51,55
26	11/28	8.8	729-746	Vectors	1-5,7,11,15,17,19,23,27,31,33,35,37,41,45,49,61,65,69,75
27	11/30	Review			

<b>28</b>	<b>12/05</b>	<b>Exam #4</b>		<b>Exam #4: Sections 8.1 – 8.5, 8.8</b>	
29	12/07	Review			
<b>30</b>	<b>12/14</b>	<b>Final</b>		<b>Comprehensive Final Exam (8:00 – 10:00)</b>	