

Angelina College
Division of Science and Mathematics
MATH 2412 – Precalculus
Instructional Syllabus – Spring 2018 (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: George Reed
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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 Maria Lopez or Steve Hudman in room 200 of the Student Center. At a postsecondary institution, you must self-identify as a person with a disability; Ms. Lopez and Mr. Hudman 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, in Room 101 of the Student Center. You may also contact Dean Hudman by phone at [\(936\) 633-5292](tel:9366335292) or by email 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. The last day to drop a course is November 6th.
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. No electronic devices, other than approved calculators, may be used during any quiz or test. These prohibited electronic devices may include, but not be limited to: cell phones or smart phones, smart watches or other electronic visual aids, audio players, recorders, tablets, notebooks, Google glass, or any other similar devices, any digital device that can be used to record, transmit, receive, or play back audio, photographic, text, or video content.

Failure to follow this rule may result in the student receiving a grade of zero on the quiz or test. If the student receives a test score of zero due to failure to follow this rule, the zero test score cannot be replaced by the final exam.

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. Projects valued at 20 points.
 - c. 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 January 31st will not receive a grade for the class. Those dropping between February 1st and April 2nd (inclusive) will receive a W in the course. April 2nd 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	01/17	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	01/22	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	01/24	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	01/29	5.4	486-497	Right Triangle Trigonometry	1-5,6-16even,23-28,30,32,38,42-50even,52,56
5	01/31	Review			
6	02/05	Exam #1		Exam #1: Sections 5.1 – 5.4	
7	02/07	6.1	506-522	Graphs of the Sine and Cosine Functions	1-5,7,9,11,19,22-30even, 31-37
8	02/12	6.2	523-540	Graphs of the Other Trigonometric Functions	1-12,27,31,38,40,46,49,57
9	02/14	6.2	523-540	Graphs of the Other Trigonometric Functions	
10	02/19	6.3	541-551	Inverse Trigonometric Functions	1-7,9,11,13,14,17,18,22,24-36even,42,48,53,54,61
11	02/21	Review			
12	02/26	Exam #2		Exam #2: Sections 6.1 – 6.3	
13	02/28	7.1	560-569	Solving Trigonometric Equations with Identities	4, 5-15odd,16,20,24,28,29-33,35,39, 40
14	03/05	7.2	570-583	Sum and Difference Identities	4-18even,20,24,26,32,42-50even,53
15	03/07	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	03/19	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	03/21	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	03/26			Activity	
19	03/28	Review			
20	04/02*	Exam #3		Exam #3: Sections 7.1 – 7.6	
21	04/04	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	04/09	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	04/11	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	04/16	8.4	681-696	Polar Coordinates: Graphs	1,3,7,11,17,21,25,34,44,48
25	04/18	8.5	697-707	Polar Form of Complex Numbers	1-4,6,10,13,16,17,21,25,29,33,47,51, 55
26	04/23	8.8	729-746	Vectors	1-5,7,11,15,17,19,23,27,31,33,35,37,41,45,49,61
27	04/25	Review			
28	04/30	Exam #4		Exam #4: Sections 8.1-8.5, 8.8	
29	05/02	Review		Review for Final Exam	
30				Comprehensive Final Exam	

04/02 is the last date to drop with a "W"