Angelina College
Division of Science and Mathematics
MATH 2412 – Precalculus
Instructional Syllabus – Fall 2018

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
Office Location: S-203C
Office Hours:
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Day	Office Hours
Monday	**1:30-3:00**
Tuesday	**2:30-3:30**
Wednesday	**1:30-3:00**
Thursday	**2:30-3:30**
Friday	**By Appointment**

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: Concepts Through Functions, Fourth Edition, by Sullivan and Sullivan is the required textbook. This text is available as a custom publication in the AC Bookstore.
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. **Educational Accommodations** – 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 may fill out the Educational Accommodations application within your AC Portal, under the "Student Services" tab. A member from the Office of Student Success & Inclusion will contact you once the application is received. At a post-secondary institution, you must self-identify as a person with a disability in order to receive services; for questions regarding the application process you can visit the Office of Student Success and Inclusion in the Student Center (205A); text 936.463.8078; or email access@angelina.edu. To report any complaints of discrimination related to a 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 calling (936) 633-5292 or by emailing 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 of 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 5th.

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. <u>EVALUATION AND GRADING:</u>

1. Your grade will be assessed by:
    a. Four tests valued at 100 points each for a total of 400 points.
    b. 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 12th will not receive a grade for the class. Those dropping between September 13th and November 5th (inclusive) will receive a W in the course. November 5th 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 Monday/Wednesday

Lesson	Date	Sections	Description	Problems
1	08/27	5.1	Angles and Their Measure	3-11, 13-29 odd, 35-53 odd, 59, 63-91 odd, 92, 95, 96, 99, 103, 107, 108
2	08/29	5.2	Trigonometric Functions: Unit Circle Approach	7-13, 15-27 odd, 31-37 odd, 41, 45, 47, 51, 53, 57, 65. 67, 73, 75, 79, 83, 121, 125, 126
3	09/05	5.3	Properties of the Trigonometric Functions	5-11, 15-21 odd, 29, 31, 35, 37, 39, 45, 49, 53, 55, 59, 61, 63, 73, 77, 79, 81, 91, 95, 97, 101-111 odd, 113, 117, 120, 133
4	09/10	5.4	Graphs of the Sine and Cosine Functions	3-9, 11-21 odd, 25, 27, 31, 35, 37, 39, 43, 45, 49, 53, 61, 63, 65, 87, 89, 90, 92
5	09/12	5.5	Graphs of the Tangent, Cotangent, Cosecant, & Secant Functions	3-7, 9-25 odd, 33, 41, 51
6	09/17	5.6	Phase Shift; Sinusoidal Curve Fitting	1, 2, 3-27 odd, 28, 33, 34
7	09/19	Review	Review	
8	09/24	**Exam #1**	**Exam #1 – Chapter 6**	
9	09/26	6.1	The Inverse Sine, Cosine, and Tangent Functions	7-13, 15-23 odd, 27, 29, 33, 37, 39, 41, 43, 45, 49, 51, 53, 55, 61, 63, 65, 69, 76
10	10/01	6.2	The Inverse Trigonometric Functions (Continued)	4-9, 11, 13, 15, 19, 21, 23, 27, 29, 35-47 odd, 79, 85
11	10/03	6.3	Trigonometric Equations	7-11, 13-23 odd, 27, 29, 33, 35, 37, 48, 51-67 odd, 68, 71, 73, 79, 83, 93, 95, 106
12	10/08	6.3 (cont)	Trigonometric Equations	
13	10/10	6.4	Trigonometric Identities	4-6, 9, 11, 13, 19, 21, 24, 25, 30, 32, 34, 40, 42, 44, 46, 49, 52, 54, 62, 63, 67, 72, 75, 80
14	10/15	6.4 (cont)	Trigonometric Identities (cont)	
15	10/17	6.5 6.6	Sum and Difference Formulas Double-angle and Half-angle Formulas	7-11, 13, 17, 25, 27, 29, 35, 37, 39, 41, 49, 53, 57 7, 11, 19, 21, 29, 35, 47, 69
16	10/22	Review	Review	
17	10/24	**Exam #2**	**Exam #2 – Chapter 7**	
18	10/29	7.1	Right Angle Trigonometry; Applications	4-9, 11-17 odd, 21-27 odd, 31-35 odd, 41-49 odd, 55, 56, 64, 69, 75, 76
19	10/31	7.2 7.3	The Law of Sines The Law of Cosines	4-6, 7-11 odd, 17, 21, 25-39 odd, 42, 44, 50, 53 9-13 odd, 19, 25, 27, 33, 43, 44, 50, 51
20	11/05*	7.4 Review	Area of a Triangle Review	2-5, 9, 13, 19, 27, 31, 33, 38, 42
21	11/07	**Exam #3**	**Exam #3 – Chapter 8**	
22	11/12	8.1 8.2	Polar Coordinates Polar Equations and Graphs	6-9, 11, 17, 19, 21, 25, 27, 39, 43, 45, 49, 55, 57, 59, 67, 71, 73, 77 13-25 odd, 29-35 odd, 39, 43-51 odd
23	11/14	8.2 (cont)	Polar Equations and Graphs (cont)	
24	11/19	8.4	Vectors	1-9, 11, 13, 25, 27, 31-37 odd, 41-49 odd, 63, 65
25	11/26	8.5 8.6	The Dot Product Vectors in Space	3, 4, 7, 9, 11, 17, 25 7, 9, 17, 19, 27, 31-41 odd, 47, 49, 53, 55
26	11/28	8.7	The Cross Product	4-7, 9, 11, 15, 23, 29, 35, 45
27	12/03	**Exam #4**	**Exam 4 – Chapter 9**	
28	12/05	Review	Review	
29	**12/12**	**Final Exam**	**Comprehensive Final Exam**	

Last day to drop a course is 11/05.

Math 2412 Assignments Tuesday/Thursday

Lesson	Date	Sections	Description	Problems
1	08/28	5.1	Angles and Their Measure	3-11, 13-29 odd, 35-53 odd, 59, 63-91 odd, 92, 95, 96, 99, 103, 107, 108
2	08/30	5.2	Trigonometric Functions: Unit Circle Approach	7-13, 15-27 odd, 31-37 odd, 41, 45, 47, 51, 53, 57, 65. 67, 73, 75, 79, 83, 121, 125, 126
3	09/04	5.2 (cont)	Trigonometric Functions: Unit Circle Approach (cont)	
4	09/06	5.3	Properties of the Trigonometric Functions	5-11, 15-21 odd, 29, 31, 35, 37, 39, 45, 49, 53, 55, 59, 61, 63, 73, 77, 79, 81, 91, 95, 97, 101-111 odd, 113, 117, 120, 133
5	09/11	5.4	Graphs of the Sine and Cosine Functions	3-9, 11-21 odd, 25, 27, 31, 35, 37, 39, 43, 45, 49, 53, 61, 63, 65, 87, 89, 90, 92
6	09/13	5.5	Graphs of the Tangent, Cotangent, Cosecant, & Secant Functions	3-7, 9-25 odd, 33, 41, 51
7	09/18	5.6	Phase Shift; Sinusoidal Curve Fitting	1, 2, 3-27 odd, 28, 33, 34
8	09/20	Review	Review	
9	09/25	**Exam #1**	**Exam #1 – Chapter 6**	
10	09/27	6.1	The Inverse Sine, Cosine, and Tangent Functions	7-13, 15-23 odd, 27, 29, 33, 37, 39, 41, 43, 45, 49, 51, 53, 55, 61, 63, 65, 69, 76
11	10/02	6.2	The Inverse Trigonometric Functions (Continued)	4-9, 11, 13, 15, 19, 21, 23, 27, 29, 35-47 odd, 79, 85
12	10/04	6.3	Trigonometric Equations	7-11, 13-23 odd, 27, 29, 33, 35, 37, 48, 51-67 odd, 68, 71, 73, 79, 83, 93, 95, 106
13	10/09	6.3 (cont)	Trigonometric Equations	
14	10/11	6.4	Trigonometric Identities	4-6, 9, 11, 13, 19, 21, 24, 25, 30, 32, 34, 40, 42, 44, 46, 49, 52, 54, 62, 63, 67, 72, 75, 80
15	10/16	6.4 (cont)	Trigonometric Identities (cont)	
16	10/18	6.5 6.6	Sum and Difference Formulas Double-angle and Half-angle Formulas	7-11, 13, 17, 25, 27, 29, 35, 37, 39, 41, 49, 53, 57 7, 11, 19, 21, 29, 35, 47, 69
17	10/23	Review	Review	
18	10/25	**Exam #2**	**Exam #2 – Chapter 7**	
19	10/30	7.1	Right Angle Trigonometry; Applications	4-9, 11-17 odd, 21-27 odd, 31-35 odd, 41-49 odd, 55, 56, 64, 69, 75, 76
20	11/01*	7.2 7.3	The Law of Sines The Law of Cosines	4-6, 7-11 odd, 17, 21, 25-39 odd, 42, 44, 50, 53 9-13 odd, 19, 25, 27, 33, 43, 44, 50, 51
21	11/06	7.4 Review	Area of a Triangle Review	2-5, 9, 13, 19, 27, 31, 33, 38, 42
22	11/08	**Exam #3**	**Exam #3 – Chapter 8**	
23	11/13	8.1 8.2	Polar Coordinates Polar Equations and Graphs	6-9, 11, 17, 19, 21, 25, 27, 39, 43, 45, 49, 55, 57, 59, 67, 71, 73, 77 13-25 odd, 29-35 odd, 39, 43-51 odd
24	11/15	8.2 (cont)	Polar Equations and Graphs (cont)	
25	11/20	8.4	Vectors	1-9, 11, 13, 25, 27, 31-37 odd, 41-49 odd, 63, 65
26	11/27	8.5 8.6	The Dot Product Vectors in Space	3, 4, 7, 9, 11, 17, 25 7, 9, 17, 19, 27, 31-41 odd, 47, 49, 53, 55
27	11/29	8.7	The Cross Product	4-7, 9, 11, 15, 23, 29, 35, 45
28	12/04	**Exam #4**	**Exam 4 – Chapter 9**	
29	12/06	Review	Review	
30	**12/**	**Final Exam**	**Comprehensive Final Exam (8:00 – 10:00)**	

Last day to drop a course is 11/05.