BETHANY LUTHERAN COLLEGE

COURSE TITLE Trigonometry

COURSE NUMBER MATH 112

NUMBER OF CREDITS 3 Credits

INSTRUCTOR

Kyle Jore
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Office Hours: 2:30-3:20 MTWF
By Appointment

COURSE PURPOSE

This course satisfies the general education requirement for mathematics. It also serves as a prerequisite for Calculus I (MATH 151). Trigonometery is a required course for Biology majors. Additionally, elementary education majors who are interested in middle school mathematics endorsement may elect to take this course.

COURSE DESCRIPTION

Trigonometric functions, inverse trigonometric functions, trigonometric identities and conditional equations, solving triangles, polar coordinates, complex numbers, analytic geometry. Prerequisite: MATH 111 or equivalent.

COURSE MATERIALS

Textbook: Essentials of trigonometry, Fourth Edition
K. J. Smith, Thomson Brooks/Cole
ISBN: 0-534-49423-4

MATHEMATICS MAJOR LEARNING OUTCOMES

1. Formulate and apply algorithms to solve mathematical problems, implementing technology when appropriate, and judge the validity of the results.
2. Model and analyze real world problems by reformulating these problems in a mathematical context through drawing inferences from data represented graphically, verbally, numerically, or symbolically.
3. Organize and explain mathematical ideas in written and verbal form, including proper use of terms and notation.
4. Demonstrate mastery of the core concepts in algebra and analysis.
5. Develop and evaluate mathematical proofs.
6. Elucidate the interdependency of different areas of mathematics and the connections between mathematics and other disciplines.

COURSE OBJECTIVES
Students should be able to:

	Major Outcome Supported
1. Connect concepts of geometry and algebra to trigonometry	6
2. Interpret and use the vocabulary, definitions and notation used in trigonometry.	3
3. Relate geometric concepts to the right triangle and unit circle definitions of the six trigonometric functions.	1, 3, 6
4. Use concepts of angles and the unit circle to determine exact values of the six trigonometric ratios for special angles and approximate values for all angles.	1. 3
5. Generate and interpret graphs of trigonometric functions and their inverses.	1, 3, 6
6. Memorize, identify, prove and apply the fundamental trigonometric identities.	1, 3, 5
7. Solve various types of applied problems using triangle properties, arc length, area formulae, characteristics of the trigonometric functions, linear and angular velocity formulae, and polar coordinates.	1, 2, 3, 6
8. Integrate algebraic properties and trigonometric concepts to solve equations involving trigonometric functions.	1, 2, 3, 6
9. Utilize polar coordinate system (symbolic and graphical representations) to represent relations in the real number system and simply operations in the complex number system.	1, 3, 6

COURSE OUTLINE

Monday	Tuesday	Wednesday	Thursday	Friday
12 1.1	**13**	**14** 1.2	**15**	**16** 1.3 Quiz 1
19 No Class	**20**	**21** 1.3	**22**	**23** 1.4 Quiz 2
26 1.5	**27**	**28** 1.5	**29**	**30** Chapter 1 Test
Feb 2 2.1	**3**	**4** 2.2	**5**	**6** 2.3 Quiz 3
9 2.3	**10**	**11** 2.4	**12**	**13** 2.4 Quiz 4
16 No Class	**17**	**18** 3.1	**19**	**20** Chapter 2 Test
23 3.2	**24**	**25** 3.3	**26**	**27** 3.3 Quiz 5
2-Mar 3.4	**3**	**4** 3.4	**5**	**6** Chapter 3 Test
9 Spring	**10**	**11** Break	**12**	**13** Week
16 4.1	**17**	**18** Advising Day	**19**	**20** 4.1 Quiz 6
23 4.2	**24**	**25** 4.3	**26**	**27** 4.4 Quiz 7
30 4.5	**31**	**Apr 1** Chapter 4 Test	**2** Easter	**3** Break
6 Easter	**7** Break	**8** 5.1	**9**	**10** 5.2 Quiz 8
13 5.3	**14**	**15** 5.4	**16**	**17** 5.5 Quiz 9
20 5.5	**21**	**22** 6.1	**23**	**24** Chapter 5 Test

27 6.2	**28**	**29** 6.2	**30**	**May 1** 6.3 Quiz 10
4 6.3	**5**	**6** 6.4	**7**	**8** 6.4 Quiz 11
11 Final Exam 10:30-12:30	**12**	**13**	**14**	**15**

COURSE EVALUATION

Quizzes
At the close of each section, homework problems will be recommended from the text. These problems will not be collected. Instead each Friday a short quiz will be administered that summarizes the homework.

Exams
There will be 5 chapter tests at the end of each chapter and one 2-hour final exam on May 11th.

Final Grade Composition:

Quizzes	25%
Chapter 1 Test	10%
Chapter 2 Test	10%
Chapter 3 Test	10%
Chapter 4 Test	10%
Chapter 5 Test	10%
Final Exam	25%

Grading Scale:

94-100	A	74-76	C
90-93	A-	70-73	C-
87-89	B+	67-69	D+
84-86	B	64-66	D
80-83	B-	60-63	D-
77-79	C+	0-59	F

DISCLAIMER

The instructor reserves the right to modify, amend, or change the syllabus as the curriculum and/or program require.