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# NUAMES

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[www.nuames.org](http://www.nuames.org)

## **Course Syllabus** (revised 1/2017)

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<b>Course Title:</b>	MATH1060 – Trigonometry
<b>Course Schedule:</b>	1 semester (2 credits through Utah State University)
<b>Required Text:</b>	Young: <i>Precalculus</i> , (John Wiley & Sons, Inc.)
<b>Web Resources:</b>	<a href="http://www.cbennett.nuames.org/">http://www.cbennett.nuames.org/</a>
<b>Instructor's Name:</b>	Cory Bennett
<b>Telephone (School):</b>	(801) 395-3363
<b>School Address:</b>	2750 N. University Park Blvd. Layton, UT 84041
<b>Davis District E-mail Address:</b>	<a href="mailto:cbennett@dsmail.net">cbennett@dsmail.net</a>
<b>E-mail Address:</b>	<a href="mailto:cbennett_nuames@comcast.net">cbennett_nuames@comcast.net</a>
<b>Availability:</b>	Monday-Thursday 2:40 - 3:15 PM

### **Welcome and Course Overview**

MATH 1060 is intended to prepare students for entry into the Calculus sequence by providing rigorous coverage of trigonometric functions, trigonometric identities, and vector analysis. Angles, right triangle trigonometry, the unit circle, trigonometric functions and their graphs, inverse trig functions, trigonometric identities and formulas, solving trigonometric equations, Laws of Sines and Cosines, vectors and their applications.

### **Instructor Bio**

My name is Cory Bennett and this is my eighth year teaching mathematics at NUAMES. During my summers, I train for PowerSchool, a division of Pearson Education. I am widely traveled during that time but enjoy being close to home in my mountain home. I also instruct math courses for the Apollo group (University of Phoenix) online and ground classes.

I have taught mathematics and computer science (among other subjects) for over 30 years in the public education system. I spent most of my time in Idaho pausing briefly to get my MS in Mathematics/Computer Science Education from Oregon State. I had some great experiences working with the students as an athletic coach, musical (stage) director and academic champion. During these years, I also taught community education, instructed college courses, and did commercial application software training and consultation. I also spent three years teaching mathematics at Adele C. Young Intermediate in Brigham City.

I like to spend most of my free time with my family, all of whom have left the nest (sometimes we have to travel as they live all over the country). My wife and I are parents to six children and nineteen lovely grandchildren.

I live right on the mountain. This affords me a scenic view of the valley and of the Great Salt Lake. There are also miles and miles of trails to hike, and I love to hike! When I have spare time, I work in the yard and with my gardens, and play with some of our grandchildren.

## ***CONTENT***

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### **Chapter 4 Trigonometric Functions of Angles**

- Section 4.1** Angle Measure
- Section 4.2** Right Triangle Trigonometry
- Section 4.3** Trigonometric Functions of Angles
- Section 4.4** The Law of Sines
- Section 4.5** The Law of Cosines
- Review Exercises**

### **Chapter 5 Trigonometric Functions of Real Numbers**

- Section 5.1** Trigonometric Functions: The Unit Circle Approach
- Section 5.2** Graphs of Sine and Cosine Functions
- Section 5.3** Graphs of Other Trigonometric Functions
- Review Exercises**

### **Chapter 6 Analytic Trigonometry**

- Section 6.1** Verify Trigonometric Identities
- Section 6.2** Sum and Difference Identities
- Section 6.3** Double-Angle and Half-Angle Identities
- Section 6.4** Product-to-Sum and Sum-to-Product Identities
- Section 6.5** Inverse Trigonometric Functions
- Section 6.6** Trigonometric Equations
- Review Exercises**

### **Chapter 7 Vectors, the Complex Plane, and Polar Coordinates**

- Section 7.1** Vectors
- Section 7.2** The Dot Product
- Review Exercises**

## **GRADING CATEGORIES (BASED ON WEIGHTED GRADES)**

**Tests.** There will be a test at the conclusion of each chapter. There are five tests which are worth 100 points each. Tests are weighted at 40% of the overall grade. Tests resulting in a poor performance may NOT be made up.

**Quizzes.** There will one or two quizzes in each chapter for a total of ten scheduled quizzes, to assess a student's current comprehension of the material. The points per quiz will vary depending on the number of questions on the quiz. Quizzes are weighted at 15% of the overall grade.

**Homework/Assignments.** There will be a daily assignment, which may be completed in class, but generally will be done outside the classroom. Appropriate documentation (work) must accompany the answers for full credit. Homework submitted by the due date is worth up to 5 points per assignment. Assignments are weighted at 15% of the overall grade.

**Final Exam.** There will be a comprehensive exam at the end of the course worth 200 points. The final exam is prepared by the Utah State University Mathematics and Statistics Department. The final exam is weighted at 30% of the overall grade.

## **POLICIES AND PROCEDURES**

### ***Attendance and participation***

Students should be in their seats at the start of class. All preparation, including the gathering of materials should be done prior to start of class. Materials include book, notebook, journal, pencils, and calculator (when appropriate). Students should be ready to work at the start of class, and not preparing. A student may be marked tardy if he/she is not in their seat with the appropriate materials. The citizenship grade will be decreased one level after the third tardy of the term. On the fifth tardy, the citizenship grade will become a 'U'. **Since the pace of the course is demanding, excessive absences or tardies could obviously diminish one's grade.**

Students are expected to be active in class discussions during the presentation session. Adequate time will generally be allowed during class to work and complete an assignment. Students should be doing their work in class during the time allotted. Sidebar conversation is discouraged during the presentation of material.

**Use of electronic devices, including cell phones, PDA's, and media players is forbidden, as they provide distraction to the educational environment. Such devices will be confiscated according to school policy.** Calculators may be used during the work session, as is appropriate.

### ***Use of calculators***

The recommended calculator is the TI-84, and if needed, the TI-83 may suffice. Each student **must** have their own calculator. Students may also utilize the scientific calculator from Math 1050. Games during class time are prohibited.

***Late assignments***

Late assignments are penalized at 20% per day but will not be accepted after 4 days. This may include missing assignments and quizzes.

***Feedback***

Grades will be posted daily and made available for student and parental review on the Davis Schools web site (<http://www.davis.k12.ut.us/>). Student may request a hardcopy progress report from the instructor at any time.

***Academic Honesty***

Academic honesty is highly valued at the NUAMES. You must always submit work that represents your own efforts. While it is appropriate to work with others in obtaining a solution, it is inappropriate to copy directly and submit it as your own work.

***Management.***

Students are expected to adhere to the school and class rules. Deviations and distractions will be dealt with accord to school policy. Certain additional rules may be applied to adhere to the Weber State Campus Code of Conduct.

***Web Resources***

On the web site <http://www.cbennett.nuames.org/> there are the following resources:

- schedule of assignments
- links for instructor notes
- class notes, posted electronically to the website

**Grade Scale**

<b>Grade</b>	<b>Percent range</b>	<b>Remarks</b>
A	93 - 100	Excellent work.
A-	88 - 92	
B+	86 - 87	Good work.
B	83 - 85	
B-	80 - 82	
C+	76 - 79	Below class expectations. Usually given as a consolation for lack of performance.
C	72 - 75	
C-	70 - 71	
D	60-69	Poor performance. Does not meet class expectations.
F	0-59	Failing

*Schedule of Assignments (subject to change)*

<b>Session</b>	<b>Topic</b>	<b>Assignment</b>
1	Section 4.1 Angle Measure ✓ Degrees and Radians ✓ Coterminal Angles ✓ Arc Length ✓ Linear and Angular Speeds	<b>376:</b> 3,9-45 (mult/3),51,53,57-117 (mult/3),125-129 (odd)
2	Section 4.2 Right Triangle Trigonometry ✓ Right Triangle Ratios ✓ Evaluating Trigonometric Functions Exactly for Special Angle Measures ✓ Solving Right Triangles	<b>394:</b> 3-30 (mult/3),35,41,45-84 (mult/3),,99
3	Section 4.3 Trigonometric Functions of Angles ✓ Trigonometric Functions: the Cartesian Plane ✓ Ranges of the Trigonometric Functions ✓ Reference Angles and Reference Right Triangles ✓ Evaluating Trigonometric Functions and Non-acute Angles	<b>414:</b> 1,5,15-93 (mult/3),
4	Section 4.3 Trigonometric Functions of Angles	<b>(continued)</b>  <a href="#">Quiz 1</a>
5	Section 4.4 The Law of Sines ✓ Solving Oblique Triangles: Four Cases ✓ The Law of Sines	<b>428:</b> 3-33 (mult/3),38-40,44

6	Section 4.5 Law of Cosines ✓ Solving Oblique Triangles Using Law of Cosines ✓ Area of a Triangle	<b>440:</b> 3-27 (mult/3),35,37,39,45,49,51-,55,59
7	Review	<a href="#">Quiz 2</a>
8	Review	<b>450:</b> 3,7,9,13,15,17,21-37(odd),43,47,49,51,59,61,65,69; 75-117 (mult/3)
9	<b>Test 1</b>	4.1-4.5
10	Section 5.1 Trigonometric Functions: The Unit Circle Approach ✓ Trigonometric Functions and the Unit Circle ✓ Circular Functions ✓ Properties of Circular Functions	<b>462:</b> 3-81 (mult/3)
11	Section 5.2 Graphs of Sine and Cosine Functions ✓ The Graph of $f(x) = \sin x$ ✓ The Graph of $f(x) = \cos x$ ✓ The Amplitude and Period of Sinusoidal Graphs ✓ Graphing a Shifted Sinusoidal Function ✓ Harmonic Motion ✓ Graphing Sums of Functions: Addition of Ordinates	<b>489:</b> 1-10,12-39 (mult/3),41-59 (odd), 61, 71,77, 96-108(mult/3)
12	Review	<a href="#">Quiz 3</a>
13	Section 5.3 Graphs of Other Trigonometric Functions ✓ The Tangent Function ✓ The Cotangent Function ✓ The Secant Function ✓ The Cosecant Function ✓ Graphing Tangent, Cotangent, Secant, and Cosecant Functions ✓ Translations of Trigonometric Functions	<b>511:</b> 1-8 For each of <b>the following in bold</b> , use transformations to graph, then check w/calculator: <b>9,11,13,17,21,29,31,37,39,47,49,51;</b> 57,61



14	Review	<b>520:</b> 1-21(odd),22,23,24,25,26, <b>27,31</b> and <b>33</b> (identify amplitude and period then check w/calculator), 35,37,39,41,45,47,51,53,55(identify any transformation then check w/calculator),59
15	<b>Test 2</b>	5.1-5.3
16	Section 6.1 Verifying Trigonometric Identities <ul style="list-style-type: none"> <li>✓ Fundamental Identities</li> <li>✓ Simplifying Trigonometric Expressions Using Identities</li> <li>✓ Verifying Identities</li> </ul>	<b>533:</b> 3-81 (mult/3)
17	Section 6.2 Sum and Difference Identities <ul style="list-style-type: none"> <li>✓ Sum and Difference Identities for the Cosine Function</li> <li>✓ Sum and Difference Identities for the Sine Function</li> <li>✓ Sum and Difference Identities for the Tangent Function</li> </ul>	<b>546:</b> 3-54 (mult/3)
18	Section 6.3 Double-Angle and Half- Angle Identities <ul style="list-style-type: none"> <li>✓ Double-Angle Identities</li> <li>✓ Half-Angle Identities</li> </ul>	<b>561:</b> 3-57(mult/3),67,71,77,83,87,89,91,93
19	Review	<b>Quiz 4</b>
20	Section 6.4 Product-to-Sum and Sum-to-Product Identities <ul style="list-style-type: none"> <li>✓ Product-to-Sum Identities</li> <li>✓ Sum-to-Product Identities</li> </ul>	<b>571:</b> 1-21(mult/3),35-37

21	<p>Section 6.5 Inverse Trigonometric Functions</p> <ul style="list-style-type: none"> <li>✓ Inverse Sine Function</li> <li>✓ Inverse Cosine Function</li> <li>✓ Inverse Tangent Function</li> <li>✓ Remaining Inverse Trigonometric Functions</li> <li>✓ Finding Exact Values for Expressions Involving Inverse Trigonometric Functions</li> </ul>	<b>589:</b> 3-90(mult/3),94,95
22	<p>Section 6.6 Trigonometric Equations</p> <ul style="list-style-type: none"> <li>✓ Solving Trigonometric Equations by Inspection</li> <li>✓ Solving Trigonometric Equations Using Algebraic Techniques</li> <li>✓ Solving Trigonometric Equations That Require the Use of Inverse Functions</li> <li>✓ Using Trigonometric Identities to Solve Trig Equations</li> </ul>	<b>605:</b> 3-78(mult/3)
23	Review	<a href="#">Quiz 5</a>
24	Review	<b>615:</b> 1-11(odd), 15, 17, 21-39(odd), 45, 49, 51, 53, 57, 59, 61, 65, 67, 69, 71, 73, 81, 83, 87, 93-115(odd), 119-139(odd), 157, 159
25	<b>Test 3</b>	6.1-6.6
26	<p>Section 7.1 Vectors</p> <ul style="list-style-type: none"> <li>✓ Magnitude and Direction of Vectors</li> <li>✓ Vector Operations</li> <li>✓ Horizontal and Vertical Components of a Vector</li> <li>✓ Unit Vectors</li> <li>✓ Resultant Vectors</li> </ul>	<b>634:</b> 3-60(mult/3), 61-73 (odd), 81-83
27	Section 7.1 (cont.)	<a href="#">Quiz 6</a>
28	<p>Section 7.2 The Dot Product</p> <ul style="list-style-type: none"> <li>✓ Multiplying Two Vectors</li> <li>✓ Angle Between Two Vectors</li> </ul>	<b>645:</b> 3-42(mult/3), 53, 55, 61, 63, 64
29	Section 7.2 (cont.)	<a href="#">Quiz 7</a>

30	Review for Test ch. 7	<b>690:</b> 1-39(odd)
31	<b>Test 4</b>	7.1-7.2
32	Review for Final Exam	Practice test
33	Review for Final Exam	Practice test
34	<b>Final Exam – Part 1</b>	
35	<b>Final Exam – Part 2</b>	