

**MATH 11022      TRIGONOMETRY      SPRING 2014**

**INSTRUCTOR:** Dr. Beth Osikiewicz

**CONTACT INFORMATION:**

- Office: B-115
- Phone: (330) 308-7412
- Office hours: 10:00–10:40 AM MW,  
12:00–12:45 PM TWR,  
2:15–3:40 PM MW,  
or by appointment.
- E-Mail address: bosikiew@kent.edu
- Home page: <http://www.personal.kent.edu/~bosikiew/>

**CLASS TIME:** 12:50 PM – 2:05 PM      TR      C107      Call #14834

**TEXT:** *TRIGONOMETRY (Schaum's Outline)*, 5th edition, by Moyer and Ayres.

**CALCULATOR:** A scientific calculator is required but may be limited on some exams. You are NOT allowed to use an Ipad application or a cell phone as your calculator. If your calculator is able to store material, no notes, formulas, programs, or any information can be stored in the calculator. If you violate this condition, you will receive a zero on the exam. In addition, a large number of handouts will be given in this course. A 3-ring binder is the easiest way to accommodate the handouts that will be distributed throughout the semester.

**PREREQUISITES:** Students should have appropriate placement scores or have a minimum C grade in MATH 11010 before taking this class. You should be well versed in working with polynomial and rational expressions, roots and radicals, and solving equations and inequalities. You should also have a working knowledge of functions and their graphs, including the concepts of domain and range.

**COURSE OBJECTIVES:** Chapters 1–14 (some sections will be skipped): trigonometric functions and their graphs, trigonometric identities and equations, inverse trigonometric functions, and the solution of triangles.

**GRADING:**

**GRADING SCALE**

|   |   |                   |
|---|---|-------------------|
| A | = | 900 — 1000 points |
| B | = | 800 — 899 points  |
| C | = | 700 — 799 points  |
| D | = | 600 — 699 points  |

The final grade will be based on the following:

$$\left. \begin{array}{ll} \text{graded homework} & (130 \text{ pts}) \\ 4 \text{ in class exams} & (620 \text{ pts}) \\ 1 \text{ comprehensive final} & (250 \text{ pts}) \end{array} \right\} = 1000 \text{ total points}$$

**ATTENDANCE POLICY:** Regular attendance is necessary and expected. If you must miss a class, then YOU are responsible for any material that was covered. Please make arrangements with a fellow classmate to get the notes.

**DAILY HOMEWORK ASSIGNMENTS:** Daily homework will be assigned from each section but will not be collected. Therefore, it is your responsibility to ensure that you are doing the homework problems correctly. Keep in mind that the answers to all of the problems are found in the text, and the first part of class will always be devoted to answering homework problems. I encourage you to work in groups with your fellow classmates. Lastly, note that exam problems will be similar to assigned homework problems; hence, your success in this class is proportional to the amount of homework that you complete.

**GRADED HOMEWORK ASSIGNMENTS:** Several graded homework assignments will be given throughout the semester. Each graded homework will be announced in class and posted on the class webpage. Each graded homework will have a specific due date. In some cases, late homework will be accepted; however, twenty percentage points will be deducted from your score. No late homework will be accepted once the key to the homework is provided to the class. If you do not turn in a homework assignment, a zero will be recorded as your homework score. See homework guidelines.

**EXAMS:** There will be four 75 minute exams. Partial credit is awarded at the discretion of the instructor.

**FINAL EXAM:** The comprehensive final exam will be worth 250 points. The final exam is scheduled for Thursday, May 8, 2014 from 1:00 PM–3:00 PM.

**MAKE-UP EXAMS:** Make-up exams will be given only in exceptional cases and provided you have a valid excuse. (Please note that vacations and work do not qualify as a valid excuse.) If you must miss an exam, you must contact me within 24 hours of your absence and provide information on how I can contact you. If you do not contact me or do not have a valid excuse, I will have the option to deny giving you a make-up exam, and you will receive a grade of zero for the exam. Make-up exams should be completed prior to the next scheduled class meeting. If this is impossible, then a make-up exam will be given during **FINALS WEEK**, May 5–8, 2014. It is YOUR responsibility to schedule this make-up exam with me during the 15th week of the semester, April 28–May 1, 2014. If you fail to schedule this make-up exam during the 15th week, you will receive a zero for the exam. Please note that in general make-up exams are more difficult.

**ACADEMIC HONESTY:** All work you turn in must be your own. Cheating will not be tolerated, and those found guilty will face the highest disciplinary action.

**ON-LINE SUPPLEMENTS:** A web page for this class can be found at:

<http://www.personal.kent.edu/~bosikiew/Math11022/>

You can also access this page through the Tuscarawas Campus home page. This site contains a listing of all homework assignments. Also, BE SURE TO CHECK OUT

<http://www.personal.kent.edu/~bosikiew/Algebra-handouts/>

for some algebra supplements.

**ELECTRONIC DEVICES:** It is rude and inconsiderate to use electronic devices such as Ipods, Ipads, blackberries, etc. during class. Therefore, their use during class is prohibited. Also, please turn off all cell phones and put them away upon coming into class. If I catch you texting in class, I will simply ask you to leave. Furthermore, if a cell phone is activated during an exam, the owner will have a ten percentage point penalty assessed to his/her exam score due to the disturbance caused to the other class members. (Note: this policy also applies to any other noise-making device.)

**STUDENTS WITH DISABILITIES:** University policy 3-01.3 requires that students with disabilities be provided reasonable accommodations to ensure their equal access to course content. If you have a documented disability and require accommodations, please contact the instructor at the beginning of the semester to make arrangements for necessary classroom adjustments. Please note, you must first verify your eligibility for these through Robert Brindley, Coordinator, Academic Services, in the Academic Learning Commons or at 330-339-3391 Ext. 47433.

**CLASS CANCELLATIONS:** In case of a class cancellation, check your “@kent.edu” email account for an email from me notifying you of any homework or exam postponements.

**NOTE:** This syllabus is subject to change with notice.

## **HOMEWORK GUIDELINES**

1. Place all work in the space provided.
2. Be sure to show all of your work. Answers alone will **NOT** receive credit.
3. Be sure to circle your final answer.
4. If necessary, please staple your homework assignment.
5. Be sure your work is **neat, well-organized, and readable**. The instructor has the right to refuse any disorganized or unreadable work.
6. If you lose a copy of the assignment or need a “fresh” copy, you will find one on the course webpage.
7. If you are going to be absent from a class on which a homework assignment is due, it is your responsibility to get that assignment to me. Either submit it to me early, or have a friend give it to me.
8. In some cases, late homework will be accepted. Any homework turned in after the specified due date will be considered late and twenty percentage points will be deducted from your score. Please note that homework turned in on the due date but **AFTER** it has been collected in class is considered late.
9. No homework will be accepted once the key to the assignment is provided to the class.

## TENTATIVE SCHEDULE

| WEEK | DATES           | SECTIONS                                        |
|------|-----------------|-------------------------------------------------|
| 1    | Jan. 14, 16     | angles, def of trig functions                   |
| 2    | Jan. 21, 23     | def of trig functions, using trig functions     |
| 3    | Jan. 28, 30     | trig func of non-acute angles, using calc       |
| 4    | Feb. 4, 6       | radian, applications, circular functions        |
| 5    | Feb. 11, 13     | fundamental identities, <b>Exam I</b>           |
| 6    | Feb. 18, 20     | verifying identities, sum/difference            |
| 7    | Feb. 25, 27     | double angle, half angle, trig equations        |
| 8    | March 4, 6      | trig equations                                  |
| 9    | March 11, 13    | graphing, <b>Exam II</b>                        |
| 10   | March 18, 20    | graphing, solving right triangles               |
| 11   | April 1, 3      | law of sines, law of cosines, area of triangles |
| 12   | April 8, 10     | vectors, <b>Exam III</b>                        |
| 13   | April 15, 17    | rectangular and polar coordinates, polar graphs |
| 14   | April 22, 24    | polar graphs, inverse trig functions            |
| 15   | April 29, May 1 | <b>Exam IV</b> , Review                         |

## EXAM SCHEDULE

|        |           |                                                                                            |
|--------|-----------|--------------------------------------------------------------------------------------------|
| Exam 1 | (200 pts) | Material: angles, def and use of trig functions, radian measure and applications, etc.     |
| Exam 2 | (200 pts) | Material: identities and trigonometric equations                                           |
| Exam 3 | (160 pts) | Material: graphing, solving right triangles, law of sines, and law of cosines              |
| Exam 4 | (60 pts)  | Material: vectors, rectangular and polar coordinates, polar graphs, inverse trig functions |

**NOTE:** This schedule is subject to change with notice.

## Learning Outcomes for MATH 11022

### Knowledge

Express angles in both degree and radian measure. Solve right and oblique triangles in degrees and radians for both special and non-special angles. Represent trigonometric and inverse trigonometric functions verbally, numerically, graphically and algebraically; define the six trigonometric functions in terms of right triangles and the unit circle. Perform transformations of trigonometric and inverse trigonometric functions - translations, reflections and stretching and shrinking (amplitude, period and phase shift). Analyze the algebraic structure and graph of trigonometric and inverse trigonometric functions to determine intercepts, domain, range, intervals on which the function is increasing, decreasing or constant, asymptotes, whether the function is one-to-one, whether the graph has symmetry (even/odd), etc., and given the graph of a function to determine possible algebraic definitions. Solve a variety of trigonometric and inverse trigonometric equations, including those requiring the use of the fundamental trigonometric identities in degrees and radians for both special and non-special angles. Solve application problems that involve such equations. Identify and express the conics (quadratic equations in two variables) in standard rectangular form, graph the conics, and solve applied problems involving conics. Represent vectors graphically in both rectangular and polar coordinates. Perform basic vector operations both graphically and algebraically - addition, subtraction and scalar multiplication.

### Insight

Use trigonometric functions to model a variety of real-world problem solving applications. Understand the difference between a trigonometric function and an inverse trigonometric function. Understand the relationship among the solutions of a trigonometric equation in one variable, the zeros of the corresponding function, and the coordinates of the x-intercepts of the graph of that function. Verify trigonometric identities by algebraically manipulating trigonometric expressions using fundamental trigonometric identities. Solve application problems that involve right and oblique triangles. Understand the conceptual and notational difference between a vector and a point in the plane. Solve application problems using vectors.

### Engagement

Consider and explain the role of trigonometry in understanding science and social problems. Improve their confidence in and attitude toward trigonometry because of the course. Participate actively in class discussions.

### Responsibility

Develop confidence and competence in communicating mathematical knowledge to peers. Develop conceptual understanding and fluency with trigonometric functions, techniques, and manipulations necessary for success in Calculus.