Math 123, Trigonometry, section _____, Fall/spring _____

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<thead>
<tr>
<th>Instructor:</th>
<th>Department: Mathematics, Statistics, and Physics</th>
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<td>Office Location:</td>
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<td>Office Hours:</td>
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<td>Telephone:</td>
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<td>Preferred Method of Contact:</td>
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<td>Class time/dates:</td>
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<td>Class location:</td>
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<tr>
<td>Prerequisites:</td>
<td>MATH 111 with C or better (or equivalent high school preparation) and one unit of high school geometry</td>
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Keep this syllabus in a convenient place! It provides you with information specific to this course, and it also provides information about important university policies. This document is a course overview; it is not a contract and is subject to change as the semester evolves. The most up-to-date version will be accessible online through the Blackboard course. Any changes will be announced. Otherwise, all procedures listed here will remain the same throughout the semester.

Course Description: Studies the trigonometric functions and their applications. (Credit in both MATH 123 and 112 is not allowed.)

Required Texts: Trigonometry, 9th edition, by Ron Larson, Cengage Learning. The textbook is required for the class, but is available in many formats, including an e-book. However you purchase the book, make certain you obtain a student access code, as this is required to access and complete the homework. This is different from the class access code, which is wichita ____ ____.
- If you have taken this exact course before (same book, same edition) and enrolled in Webassign with an access code, you do not need to pay again; use your previous account. In some cases, future courses that use the same book will allow you to use your previous access code.
- If you purchased a copy that did not have the student access code, you can purchase this code separately.
- If your book has not arrived yet, you can enroll in the online homework with two weeks of temporary access.
- Purchasing the ebook does NOT come with a student access code, but purchasing a code DOES come with an ebook.

Definition of a Credit Hour: Success in this 3 credit hour course is based on the expectation that students will spend, for each unit of credit, 3 hours per unit per week with 1 of the hours used for lecture, and the other 2 for preparation/studying or course related activities. http://webs wichita.edu/inaudit/ch2_18.htm

Disabilities: If you have a physical, psychiatric/emotional, or learning disability that may impact on your ability to carry out assigned course work, contact the Office of Disability Services (DS). The office is located in Grace Wilkie Annex, room 150, (316) 978-3309 (voice/tty) (316-854-3032 videophone). DS will review your concerns and determine, with you, what academic accommodations are necessary and appropriate for you. All information and documentation of your disability is confidential and will not be released by DS without your written permission.
**Counseling & Testing:** The WSU Counseling & Testing Center provides professional counseling services to students, faculty and staff; administers tests and offers test preparation workshops; and presents programs on topics promoting personal and professional growth. Services are low cost and confidential. They are located in room 320 of Grace Wilkie Hall, and their phone number is (316) 978-3440. The Counseling & Testing Center is open on all days that the University is officially open. If you have a mental health emergency during the times that the Counseling & Testing Center is not open, please call COMCARE Crisis Services at (316) 660-7500.

**Diversity and Inclusion:** Wichita State University is committed to being an inclusive campus that reflects the evolving diversity of society. To further this goal, WSU does not discriminate in its programs and activities on the basis of race, religion, color, national origin, gender, age, sexual orientation, gender identity, gender expression, marital status, political affiliation, status as a veteran, genetic information or disability. The following person has been designated to handle inquiries regarding nondiscrimination policies: Executive Director, Office of Equal Employment Opportunity, Wichita State University, 1845 Fairmount, Wichita KS 67260-0138; telephone (316) 978-3186.

**Shocker Alert System:** Get the emergency information you need instantly and effortlessly! With the Shocker Alert System, we will contact you by email the moment there is an emergency or weather alert that affects the campus. Information about weather cancellations is also available at 978-6633, select 2. [http://www.wichita.edu/alert](http://www.wichita.edu/alert)

**Video and Audio Recording:** Video and audio recording of lectures and review sessions without the consent of the instructor is prohibited. Unless explicit permission is obtained from the instructor, recordings of lectures may not be modified and must not be transferred or transmitted to any other person, whether or not that individual is enrolled in the course.

**Intellectual Property:** Wichita State University students are subject to Board of Regents and University policies. [http://webs.wichita.edu/inaudit/ch9_10.htm](http://webs.wichita.edu/inaudit/ch9_10.htm) Any questions regarding these rights and any disputes that arise under these policies will be resolved by the President of the University, or the President’s designee, and such decision will constitute the final decision.

**Academic Honesty:** Students are responsible for knowing and following the Student Code of Conduct and the Student Academic Honesty Policy. [http://webs.wichita.edu/inaudit/ch8_05.htm](http://webs.wichita.edu/inaudit/ch8_05.htm) [http://webs.wichita.edu/inaudit/ch2_17.htm](http://webs.wichita.edu/inaudit/ch2_17.htm)

**If you need assistance:** You are offered several forms of assistance to reach success.
- First and foremost, I am available during office hours or by appointment. Visit me before seeing a tutor!
- The Khan Academy provides excellent, brief online videos which complement the lectures. Plenty of other free online resources are available as well. [https://www.khanacademy.org/](https://www.khanacademy.org/)
- WSU Math Lab on the third floor of Jabara Hall. (8am-7pm MTWR, 8am-2pm F).
- You are encouraged to form study groups or work with a study partner.
If you have questions, or if you miss a day, it is your responsibility to take advantage of these free resources.

**Procedures**

**Cell phones/Computers:** During class, please set your cell phone to silent, vibrate, or off and put it away for the duration of class.

**Calculators:** This is not an arithmetic-focused course. No calculator is required for this class, nor are
calculators of any kind allowed on tests. If you have a graphing calculator already, you may use it; these have some useful functions, but they are not required. Various free calculator apps for mobile and desktop exist, such as Geogebra and Wolframalpha. We will be using calculators for problems which require approximation, but approximation problems will not be on the test.

**Internet access:** You are expected to have daily internet access for three things: 1) Communication via wichita.edu email, 2) Use of Blackboard, 3) Webassign online homework. Information about how to forward your wichita.edu email to your main email can be found on Blackboard under Information. If internet access is not available, you may use computer labs in Jabara Hall, in Corbin Education Center, the library, and other campus buildings.

**Before class:** See the Calendar portion of this syllabus and read the sections for the upcoming day. (If it is Thursday evening, read Friday's sections.) Pay special attention to definitions, steps, and the objectives given in the Objectives portion of this syllabus. As you read, write down any questions you have so that you can contribute to class discussion. After reading the day's section, you are free to attempt the online homework to check your understanding.

**During class:** The majority of the time will be lecture and demonstrations. Take notes however you do so best.

**If you miss a class:** The digital notes are posted daily on Blackboard under Content for you to view, and the videos are posted at the link at the top of this syllabus, or on Blackboard. See the “If you need assistance” section of this syllabus if you need further assistance for the classes you missed.

**Webassign Assignments:** Sets of problems will be assigned through WebAssign for each section. All the homework for a given chapter/unit is assigned at the start of the unit, and due at the end of each unit. Due dates are on the calendar and will be announced (each due date is at 11:59pm).

**Written Assignments:** In addition to Webassign, there are also written assignments. These are usually single problems that require a detailed solution with some plain-english explanation. Initial attempts at assignments must be turned in on their respective due dates at 11:59pm CST. **Late assignments are not accepted.** You will write a solution on paper, scan or photograph it, and upload it as a PDF to Blackboard under "Written Assignments." For how to do this, visit "How to upload written assignments to Blackboard" under Information. Computer formatting is also allowed. LaTeX is recommended, and there are free editors such as Lyx. All written attempts at assignments should be on their own fresh piece of paper. Visit Blackboard > Information for a sample assignment.

I will return written assignments as soon as possible with a grade and/or feedback. **You will be graded on correct answer, correct logical steps from information to answer, and clarity.** (Write the solution as if to explain it to fellow students, not to me.) An assignment will only receive points when satisfactory. You may have to rewrite your solution several times before a grade is given. You have until the end of the semester and as many attempts as you need to complete the assignment. Grades of 8,9,or 10 points on any given assignment are final and cannot be corrected for additional points. Assignments will usually be due on Mondays and Fridays.

**Questions:** For Webassign, I recommend that you make use of the “Ask My Instructor“ function on a Webassign problem. When you do this, I receive an email which links me straight to the problem, your question, and the answer key, so I can help you most efficiently.

In general, feel free to email me questions any time regarding concepts or homework. I will usually answer you immediately via email, but if I find the question to be especially good or if it involves lots of symbols that do not translate well to text, I will answer it at the start of the following lecture. I will not include names or identifying information if I answer this way.
Grading

**Tests:** Tests are aligned with the course's objectives. Tests last the length of the period (_____ minutes) and will be collected at the end of the period. Cheating (sharing information, referring to notes) during a test will result in a zero for the test and possible failure for the course. Set your phone to silent, vibrate, or off and leave it away for the duration of the test. If you must leave the room at any time, you must turn in your test as completed.

**Necessary items:** Pencil/pen/eraser

**Allowed items:** Transparent straightedge, pencil sharpeners, pencil lead, food/drink (place on floor).

**Not allowed:** Calculators/phones/smartwatches/electronics; notes/books/paper; hats; bathroom breaks.

**Questions:** During the test I can answer some questions about answer format and instructions.

**When done:** Put your name on the front page of the test, hand your test to me, and you may leave.

Partial credit is given. For example, for a 4-point problem the following scoring guide is used:

- **4 pts:** Correct answer and sufficient work.
- **2-3 pts:** Mostly correct; one or more miscalculations
- **1-2 pts:** Conceptual error(s)
- **0 pts:** No work, copied the problem, guessed

**Tips for earning credit:**

- **Indicate your final answer clearly.** You will be graded on the answer you indicate. Box, circle, or underline it.
- **Show your work.** Even if you do steps in your head, show me. All evidence from start to finish matters.
- **More work does not equal more points.** If you fill the page and your answer is wrong, it's still wrong.

**If you cannot attend a test:** You must let me know and provide a reason and evidence for your absence (doctor's note, funeral program, etc) before the test, or within 48 hours of the test. Otherwise you will receive a zero for the test. Makeup or alternate exams will be in my office during my office hours.

**Grading Scale:** WSU uses a +/- grading scale for final grades and to calculate grade point averages. In this class, your success will be measured according to the following chart. Grades will be updated on Blackboard periodically and after every test. (Other classes might assign grades differently: Be sure to understand the different grading scales in all of your classes.)

<table>
<thead>
<tr>
<th>Webassign HW: __%</th>
<th>Written HW: __%</th>
<th>Midterm: __%</th>
<th>Final: __%</th>
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</thead>
<tbody>
<tr>
<td>&gt;93% A</td>
<td>&gt;83% B</td>
<td>&gt;73% C</td>
<td>&gt;63% D</td>
</tr>
<tr>
<td>&gt;90% A-</td>
<td>&gt;80% B-</td>
<td>&gt;70% C-</td>
<td>&gt;60% D-</td>
</tr>
<tr>
<td>&gt;87% B+</td>
<td>&gt;77% C+</td>
<td>&gt;67% D+</td>
<td>&lt;60% F</td>
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**Important Academic Dates:** For ____ semester 20__, classes begin _____, and end _____. The last date to drop a class and receive a W (withdrawn) instead of F (failed) is _____. There are no classes on ____. The final exam period is ______________. **Once the finals are collected, the semester is OVER.** No work past that date will be accepted. Grades on the borderline of a passing grade MIGHT be bumped up depending on your attendance and performance as a student.
**Objectives**

**Prerequisites**
P.5 Determine whether a relation is a function.
P.5 Evaluate functions.
P.5 Find the implied domain of a function.
P.6 Find the zeros of a function.
P.6 Determine if a function is even, odd, or neither.
P.7,8 Given a graph of a transformed parent function, describe the transformations and write the function.
P.9 Compose two or more functions.
P.9 Decompose a function into two or more functions.
P.10 Find the inverse of a function.
P.10 Determine whether a function is one-to-one (that is, has an inverse.)

**Chapter 1a**
1.1 Convert between radian and degree measure.
1.1 Find angles coterminal, complementary, and supplementary to a given angle.
1.1 Find the length of a circular arc or area of a circular sector using radian measure.
1.1 Find the linear and angular speed of a rotating object using radian measure.
1.2 MEMORIZE: Unit circle definitions of the six trig functions.
1.2 MEMORIZE: The basic unit circle; sixteen radian measures and their corresponding points.
1.2 Evaluate trigonometric functions for basic angles.
1.2 Define periodicity and find the period of a function.
1.3 MEMORIZE: Right triangle ratio definitions of the six trig functions.
1.3 Given an angle and side of a right triangle, calculate the other angles and sides.
1.3 Use right triangle trigonometry in applications.
1.3 MEMORIZE: Reciprocal, quotient, pythagorean, cofunction, even/odd identities.
1.4 Evaluate trigonometric functions for any angle, using general definitions and/or reference angles.
1.4 Find all trig functions of an angle given one trig function of that angle and a constraint.

Chapter 1b

1.5 Define: Amplitude, period/frequency, phase shift, vertical shift.

Three ways to communicate a wave: Graphs, equations, and information.

Chapter 2

2.1 (Already memorized, but keep in mind) Recip, quot, pyth, cofunc, even/odd identities.
2.1 Simplify trigonometric expressions using algebra.
2.2 Prove a trigonometric identity.
2.3,4,5 Solve trigonometric equations using various techniques.
2.4 Evaluate and rewrite expressions using sum/difference formulas.
2.5 Evaluate and rewrite expressions using half-angle, double-angle, and other formulas.
(NO NEED TO MEMORIZE formulas from 2.4 and 2.5. These will be provided.)

Chapter 3

3.1,2 Determine whether a set of information can produce two, one, or no possible triangles.
3.1 MEMORIZE: Law of Sines. Use the Law of Sines to solve triangles.
3.2 MEMORIZE: Law of Cosines. Use the Law of Cosines to solve triangles.
3.2 Use Heron's formula or the trigonometric area formula to find areas of triangles.
3.3 Given the endpoints of a vector, write its component form.
3.3 Add, subtract, and scalar-multiply vectors.
3.3 Find the unit vector in the direction of a given vector.
3.3 Convert vectors between component form and mag/dir form.
3.4 Find the dot product of two vectors.
3.4 Find the angle between two vectors. (Use a formula, or Law of Cosines.)
3.4 Determine whether two vectors are orthogonal.

Chapter 4

4.1 Add, subtract, multiply, and divide complex numbers.

Midterm exam assesses all objectives from Chapters P and 1.

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3.4 Find the dot product of two vectors.
3.4 Find the angle between two vectors. (Use a formula, or Law of Cosines.)
3.4 Determine whether two vectors are orthogonal.

Chapter 4

4.1 Add, subtract, multiply, and divide complex numbers.
4.1,2 Find complex solutions of equations.
4.2 Given real/complex zeros, write the polynomial function having those zeros.
4.3 Plot complex numbers in the complex plane.
4.3 Convert complex numbers to and from trigonometric form.
4.3 Multiply and divide complex numbers in trigonometric form.
4.4 Find powers and roots of complex numbers using DeMoivre's theorem.

(NO NEED TO MEMORIZE the following formulas: Product/quotient of two complex numbers, DeMoivre's Theorem. These will be provided.)

Final exam assesses all objectives from Chapters 2, 3, and 4.