

University of West Georgia

Course Syllabus Trigonometry & Calculus for P-8 Teachers (MATH 4753) Fall 2009

Instructor: M. Yazdani, Ph.D.

Phone: 678-839-4132

Office: 322 Boyd Building

E-mail: myazdani@westga.edu

Website: mathematics-science.org

Class Time and Location: 5:30 – 8:00 T, Boyd 307

Conference Hours:

Tuesday

9:00 –11:00, 12:30-3:30

Thursday

9:00 –11:00, 12:30-3:30

Any Other Time By Appointment

Text 1: Coburn, J. (2008), Trigonometry, McGraw Hill, Boston, Massachusetts ISBN: 978-0-07-291005-6

Text 2: LaTorre, D. et al. (2005), Calculus Concepts, An Informal Approach to the Mathematics of Change, Houghton Mifflin Company, Boston, Massachusetts, ISBN: 0-616-40128-8

STUDENT LEARNING OUTCOMES

After completion of the course, the student will demonstrate the following:

- An understanding of standard vocabulary and symbols associated with trigonometry and calculus;
- A better understanding of fundamental concepts in trigonometry, including angle measure (degree and radian), trig ratios, identities, Law of Sines, Law of Cosines, solving triangles, and graphing trigonometric functions;
- A better understanding of fundamental concepts in calculus, including limits, continuity, derivatives and their applications;
- An understanding of the scope and sequence of the P-12 mathematics curriculum.

Course Contents, Part 1, Trigonometry:

- Right angle trigonometry
- Radian and degree measure
- Trigonometric functions: the unit circle
- Trigonometric functions: any angle
- Graph of sine and cosine functions
- Graphs of other trigonometric functions
- Solving Triangles

Course Contents, Part 2, Calculus:

- Slope of a curve at a point
- Definition of the derivative
- Formal definition of the limit
- Binomial theorem, derivatives of powers of x
- Linearity of the derivative, derivatives of all polynomials
- Distance traveled at non-constant velocity
- Area under a curve
- Definition of the definite integral
- Fundamental Theorem of Calculus

Instructional Methods and Activities:

Class lectures will include the following: presentation of material and concepts, activities, problem solving techniques, and class discussions. Quizzes will be given periodically throughout the semester. There is no make up for daily quizzes. There is no make up for the tests unless the student presents a legitimate excuse.

Evaluation and grade Assignment:

Quizzes	25%
Test 1	25%
Test 2	25%
Final Exam	25%

Final grade will be determined by point accumulation as follows:

A	90% - 100%
B	80% - 89.99%
C	70% - 79.99%
D	60% - 69.99%
F	0% - 59.99%

Class Policies:

Class Rules: You are not allowed to be late for the class more than 5 minutes; you may not leave the class early. You are to turn off your cellular phone during the class; you are not allowed to use your phone as a calculator.

Attendance: Attendance is mandatory.

There are only 3 unexcused or excused absences allowed per semester. If you exceed 3 absences you will **fail** the course. Attendance will be checked each class period and it is your responsibility to sign the attendance sheet.

Conferences: Conferences can be beneficial and are encouraged. All conferences should occur during the instructor's office hours, whenever possible. If these hours conflict with a student's schedule, then appointments should be made. The instructor is very concerned about the student's achievement and well-being and encourages anyone having difficulties with the course to come by the office for extra help.

Note: If you have a documented disability, which will make it difficult for you to carry out the course work as I have outlined and / or if you need special accommodation or assistance due to disability, please contact me as soon as possible.

Course Schedule

Week	Topic	Concepts
1	Trigonometry	Right angle trigonometry Radian and degree measure
2	Trigonometry	Trigonometric functions: the unit circle
3	Trigonometry	Trigonometric functions: any angle
4	Trigonometry	Graph of sine and cosine functions
4	Trigonometry	Graphs of other trigonometric functions
5	Trigonometry	Solving Triangles
6	Trigonometry	Law of Sine
6	Trigonometry	Law of cosine
7	Trigonometry	Area of a Triangle, area of a polygon
8	Trigonometry	Amplitude, period and phase shift
9	Calculus	Slope of a curve at a point Definition of the derivative
10	Calculus	Formal definition of the limit
11	Calculus	Binomial theorem, derivatives of powers of x
12	Calculus	Linearity of the derivative, derivatives of all polynomials
13	Calculus	Distance traveled at non-constant velocity
14	Calculus	Area under a curve
15	Calculus	Definition of the definite integral
16	Calculus	Fundamental Theorem of Calculus