Math 155B - Calculus of Trigonometric Functions

Summer 2014 - Michael Muscedere

This page can be reached via my homepage at
http://www.math.umbc.edu/~mmusce1/index.html

Course Descriptions

The main topics of this course are the differentiation and integration of trigonometric functions, together with a treatment in greater depth of topics in MATH 155. Note: Math 155B is a prerequisite to Math 152.

Announcements

<u>Jun 30</u>: Welcome back!! Please review the syllabus and have questions ready for next time.

Basic Information

Time/Place:	Monday 6:00 – 9:10pm, MP 101
Instructor:	Mr. Michael Muscedere
Office:	MP 4th Floor Math Lounge
Phone:	410-993-7342
Email:	mmusce1@umbc.edu
Office hours:	Monday 5:30 – 6:00pm and by appointment
Prerequisites:	Passed MATH 155 with a C or better.
Text Book:	Notes
Publishers:	N/A
Term Dates	Academic Calender

Performance Evaluation

	Points
Mid Term Exam #1	100
3 In-class Quizzes	150 (50 pts each)
3 Homeworks	120 (40 pts each)
Final	200
TOTAL	570 points

- Letter grades will be assigned as follows:

A = 90% or higher,   B = (80% - 89%),   C=(70% - 79%)   D=(60% - 69%)   and   F = Below 60%

Homework will contribute directly to about 20% of your final course grade and therefore it is paramount that the homework be neat and legible. Each page of the homework package will consist of 8x11 sheets of paper and have the student's name, date, course number and section number on the top right hand corner. Homework packages must be stapled. Homework packages which do not conform to these directions will not be accepted. Notice that the homework due dates are shown in the schedule below.

The in-class administered quizzes are designed to test the retention of material between exams. The weighting of each is shown in the performance evaluation table above. Also notice that the dates for quizzes are shown in the schedule below.

Note NO CALCULATORS are allowed for any EXAMS nor QUIZZES given in-class.

CAUTION!
NO LATE QUIZZES, NO LATE HOMEWORK WILL BE ACCEPTED
EXAM MAKE-UPS WILL BE ADMINISTERED UNDER EXTREME
CIRCUMSTANCES AND WILL BE DIFFERENT THAN THE ORIGINAL
TEST

Tips for completing Math 155B successfully:

1. Meet the prerequisites for the class.
2. Attend all classes.

3. Turn the homework in on time. Remember if incomplete, partial credit is better than none.
4. Ask questions about the homework problems before you hand them in.

UMBC Academic Integrity Policy

By enrolling in this course, each student assumes the responsibilities of an active participant in UMBC's scholarly community in which everyone's academic work and behavior are held to the highest standards of honesty. Cheating, fabrication, plagiarism, and helping others to commit these acts are all forms of academic dishonesty, and they are wrong. Academic misconduct could result in disciplinary action that may include, but is not limited to, suspension or dismissal. To read the full Student Academic Conduct Policy, consult the UMBC Student Handbook, the Faculty Handbook, the UMBC Integrity webpage www.umbc.edu/integrity, or the Graduate School website www.umbc.edu/gradschool.

Learning Plan and Goals

The learning plan for this course divides activities into three parts: Before, During and After Lecture activities. The learning emphasis is shifted towards preparing more intensely for class opposed to seeing the material for the first time in class.

During Lecture activities are:

1. Take notes during class to supplement the handouts.
2. Participate in problem solving activities
3. Take in-class quizzes if scheduled
4. Ask questions about material and homework assignment

At the end of the lecture the student should have the concepts to work the homework problems.

After Lecture activities are:

1. Work all assigned problems reviewing the example worked in the text and in class.
2. When difficulty arises get help solving the problem by going to office hours or asking a friend\colleague for an explanation of applicable concepts. DON'T WAIT UNTIL NEXT CLASS. Form study groups.
3. Respect the integrity policy (Do not copy others solutions)

The learning goals are:

1. Review of basic trigonometric function including the unit circle, graphs angle measures and periodicity.
2. Be able to solve trigonometric equations by using the trig function properties, and inverses
3. Be able to solve trigonometric equations using add/sub, double angle, half angle and sum product formulas.
4. Be able evaluate limits involving trig functions
5. Be able to differentiate the trig functions and equations that involve them in the power, product, quotient and chain rules.
6. Be able to perform implicit differentiation with trig functions
7. Be able to solve optimization problems involving trig functions
8. Be able to integrate the trig functions
9. Understand how trig function integrals relate to area under the curve.
10. Compute Indefinite and definite integrals using substitution and be able to use the Fundamental Theorem of Calculus.
11. Be able to use integration by parts.

Tutoring:

[MATHLAB Webpage](#):
For tutoring help I strongly recommend the Learning Resource Center which operates a Math Lab. The have a walk-in tutoring program for MATH 155 Call 410 455-2444 for more details.

Schedule

HW Due	Date	Lecture Content
	T 7/08	Trigonometry of right triangles, Unit circle, trigonometric functions of real numbers, brief introduction to trigonometric graphs, angle measure, trigonometric function of angles InClassQuiz # 1 Trigonometric identities, addition and subtraction formulas, double angle, half angle and sum product formulas Inverse trigonometric functions
HW 1	T 7/15	Solving Trigonometric equations. Limits and continuity of trigonometric functions, slope of tangent, Differentiation of trigonometric functions and

		inverse trigonometric functions Product Rule, Quotient Rule, Chain Rule Maxima and Minima InClassQuiz #2
HW 2	T 7/22	1Hour EXAM #1. Integration: Anti-derivatives, indefinite integral & Fundamental theorem of calculus Area under the curve, Definite integrals and Integration by substitution InClassQuiz #3
HW 3	T 7/29	More Integration by substitution and Integration by parts : 1.5 Hour FINAL EXAM