Math 166
Analytic Geometry and Calculus with Review-Part II
Spring 2012

Instructor: N. Wetcher

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  Office Hours: M, W, F   10:15-10:45 am
         or by appointment

Course Goals:

  The students will
- review basic concepts of limits and derivatives
- review basic definitions and identities for trigonometric functions
- develop and use the derivatives of the trigonometric functions
- develop the rules for derivative of inverse trig functions and logarithmic functions
- use L'Hopital's rule to find limits of indeterminate forms
- discuss implicitly defined functions
- learn how to differentiate implicit functions
- understand the relationship between the graph of a function and its derivative
- sketch the graph of a function using derivatives and limits
- apply the concept of derivative to solving problems including optimization related rates and economics
- find antiderivatives of the basic functions
- explore the relationship between definite integrals and derivatives
- gain an appreciation of the Fundamental Theorems of Calculus
- find areas, distances and net change using definite integrals

Course Materials:

  Texts: <u>Calculus, Single Variable</u>, 2nd Edition by Jon Rogawski
     <u>A Companion to Calculus, 2nd ed.</u> by Ebersole, Schattschneider, Seville, Sommers

  Calculator: The TI 83+ or TI 84+ calculator is recommended and will be used for
       presentations, but any comparable graphing calculator with which the
       student is familiar with is acceptable.

Attendance:

- Regular attendance is necessary in order to be most successful. Poor attendance will affect a student's class participation grade.
- students are expected to notify me if they cannot be in class on a scheduled test or quiz day
- Make-ups for tests and quizzes due to <u>excused</u> absences will be given in class on the day the student returns to class unless alternate arrangements have been made

Academic Honesty:

Please refer to Moravian's "Policy on Academic Honesty" that is outlined in the current Student Handbook.

Specifically, for this class
- you may use any notes, books or library resources for homework assignments (graded or non-graded). You may also work with other students on these assignments, but, you must indicate those with whom you conferred as well as be responsible to explain all solutions by yourself.
- all tests and quizzes are to be completed by you alone, without the aid of books, notes or formula sheets unless specifically permitted by the instructor.
- graphing calculators will be required as indicated by the instructor for answering questions on assignments, tests and quizzes; however, a complete discussion as to how they were used may be required.

Special Considerations:

Accommodations can be made for those students who have disabilities or special needs. These conditions must be verified by Mr. Joe Kempfer, Assistant Director of Learning Services for Disability Support (1307 Main Street or extension 1510).

Evaluation and Grading:

Practice is vital for developing the required Calculus skills. It is expected that the student does all homework problems assigned. Some will be graded while the rest could be checked for completion.

The student will be evaluated on the basis of three tests, five quizzes, six graded homework assignments and a cumulative final exam. Class work will be used when deciding "borderline" final grades **Assignments submitted late will be graded with a 20% penalty for each day that they are late.**

The percent breakdown of the Final Grade is as follows.

Tests	45%
Quizzes	15%
Graded Homeworks	15%
Final Exam	25%

The Final Grade will be computed according to the following guideline.

AVERAGE	GRADE	AVERAGE	GRADE
92-100%	A	72-77%	C
90-91%	A-	70-71%	C-
88-89%	B+	68-69%	D+
82-87%	B	62-67%	D
80-81%	B-	60-61%	D-
78-79%	C+	0-59%	F

Math 166 Assignments

Topic	Rogawski	CTC	Assignment
Derivative Review	Review		204 : 33.35.55.57
Angle measures		8.A	237 :1(Worksheet)
Definition and Evaluation of Trig Functions		8.B	247 : 1(Worksheet cont.),6,7
Trigonometric Functions	1.4		31 : 9,11,13,19,21,
Properties of Trig Functions		8.C	259: 1, 2, 3
Domain, Range, and Graphs of Trig Functions		8.D	265: 1, 2

Quiz 1

Topic	Rogawski	CTC	Assignment
Trigonometric Limits	2.6		99: 17,19,21,29,31,33,37
Derivatives of Trig Functions	3.6		167: 1-27 odd, 31,45
Chain Rule (revisited)	3.7		175: 17, 19, 29,37,51,55
Inverse Trig Function	1.5		42: 23, 27,29,31,33
Derivatives of Inverse Functions	3.8		181: 19,23,25,33

Quiz 2

Topic	Rogawski	CTC	Assignment
Logarithm review		15A	385: 5a.c.f
Derivatives of General Exponential and Logarithmic Functions	3.9		187:1-11odd, 15, 17, 21,23,25,31, 41, 45

TEST 1 (Tentatively February 9)

Topic	Rogawski	CTC	Assignment
Implicitly Defined Functions		9A	288: 2
Solving Equations Containing dy/dx		9B	291: 1.2.3
Implicit Differentiation	3.10		192: 9,19,31

Topic	Rogawski	CTC	Assignment
Problem-Solving Strategies for Related Rates Problems		11B	319: 2,3
Setting up Equations for Related Rates Problems		11A	320:2,4,6
Related Rates	3.11		199: 1-17 odd,23
Quiz 3			
Linear Approximation and Applications	4.1		213: 1,3,7,9,13,17,37
Extreme and Critical Values		16A	408: 2, 3
Extreme Values	4.2		222: 1,3,5,9,21,31,33,35,37,39,47, 51,55,61,65
The Mean Value Theorem and Mononicity	4.3		232: 1,3,5,15-25 odd,31,37,43,51
TEST 2 (Tentatively March 2)			
The Shape of a Graph	4.4		238: 1, 3,5,11, 17, 23, 25, 27, 31 37-41 odd, 53, 55
Graphical Interpretation		17B	432-433:2, 3
L'Hopital's Rule	4.5		246: 1, 3,911,13,19,21,25,27,39
Putting It All Together		17C	438: 2, 4, 5
Graph Sketching and Asymptotes	4.6		255: 13, 19, 25, 31, 53,55,57,59
Quiz 4			
Setting Up Equations to Solve Extreme Value Problems		16B	414: 2,4,6(for 2,4)
Applied Optimization	4.7		262:3, 5 , 7,15,19,33.35.39
Anti-derivatives	4.9		281:1-29odd, 47-53odd, 63-69odd, 75

TEST 3 (Tentatively April 4)

Topic	Rogawski	Assignment
Approximating and Computing Areas	5.1	296:7, 13, 17,21,23,27
The Definite Integral	5.2	307:1-9 odd, 13, 15, 23, 25, 27, 33,35,37,43,45,55,57
The Fundamental Theorem of Calculus, Part 1	5.3	314:1-25 odd, 33, 37, 39
The Fundamental Theorem of Calculus, Part 2	5.4	320:7-23odd, 29,31

Quiz 5

Net Change as the Integral of a Rate	5.5	326:1-15 odd

FINAL EXAM May 4 -8:30 am (Section A)
April 30 -8:30 am (Section B)