Math 166
Analytic Geometry and Calculus with Review-Part II
Spring 2014

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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
- will review how to differentiate formulas implicitly
- 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 concepts
- 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: Calculus, Single Variable, 2nd Edition by Jon Rogawski
A Companion to Calculus, 2nd ed. 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 excused 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:

Students who wish to request accommodations in this class for a disability should contact Elaine Mara, assistant director of learning services for academic and disability support at 1307 Main Street, or by calling 610-861-1510. Accommodations cannot be provided until authorization is received from the Academic Support Center.

Student Expectations

Students should be spending approximately ten hours per week outside of scheduled class times on assigned reading and exercises, completing graded problem sets and studying for quizzes and tests.

After completing this course, students are expected to be able to

- apply the rules of derivatives learned in Math 106 to trigonometric functions
- find the derivatives of logarithmic functions
- use logarithmic differentiation when appropriate
- use L'Hopital's rule when appropriate
- sketch polynomial and rational functions by identifying extreme points, inflection points and asymptotes
- use implicit differentialtion while solving related rates problems
- solve real world extreme value problems
- find antiderivatives of simple functions
- use the Fundamental Theorem to determine areas and solve net change problems.

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 out of seven 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, 57,107
Angle measures		8.A	237:1(Worksheet)
Definition and Evaluation of Trig Functions		8.B	247: 1(Worksheet cont.), 6bc, 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			
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			
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 7)			
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			

Topic	Rogawski	CTC	Assignment
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 February 28)

The Shape of a Graph	4.4		238: 1-11 odd, 17, 23, 27,25,27,31 37-45 odd, 53, 55
Graphical Interpretation		17B	432-433:1-3
L'Hopital's Rule	4.5		246: 1, 3,911,13,19,21,25,27,39
Putting It All Together		17C	438: 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	414:1, 2, 4, 6(for 1, 2,4)
Applied Optimization	4.7		262:1, 3, 5,9 ,11,19,33,.39
Anti-derivatives	4.9		281:1-29odd,47-53odd,63-69odd,75

TEST 3 (Tentatively April 9)

Topic	Rogawski	CTC	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
Area under a Curve as a Definite Integral		20A	491:3,4,5
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 **Math 166a –Thursday, May 1-1:30pm**

Math 166b- Tuesday, April 29-8:30am