Math 166
Analytic Geometry and Calculus with Review-Part II
Spring 2006

Instructor: N. Wetcher
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Office Hours: T   8:00-9:00 am
F 11:15am-12:15 pm
or by appointment

Course Goals:

The students will

- extend their knowledge of trigonometric functions to include limits and derivatives
- develop the rules for derivative of inverse trig functions and logarithmic functions
- apply the concept of derivative to solving problems including optimization, related rates and economics
- analyze functions using calculus in order to gain a better understanding of their graphs
- find anti-derivatives of basic functions
- explore the relationship between definite integrals and derivatives
- (Fundamental Theorems of Calculus)
- find areas and distances using definite integrals
- use L'Hopital's rule to find limits of indeterminate forms

Course Materials:

Texts: Calculus, 5E by Stewart
A Companion to Calculus 2nd Edition by Ebersole, Schattschneider, Sevilla, Somers

Calculator: The TI 83+ 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. Attendance will be taken and will be used when deciding borderline grades.
- There will be a 20% penalty for each day that a Graded Assignment is late.
- There will be no make-up for missed quizzes,
- Make-up tests are given only in extreme, pre-approved cases. If you have to miss a test it is your responsibility to contact me in advance.

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 sources for any homework assignment (graded or non-graded). You may also work with other students on these assignments, <u>but</u>, 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.

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 four tests, best four (out of five) quizzes, four problem sets, and a cumulative final exam. Attendance, class participation and effort will be used to decide borderline grades. Late assignments will be graded with a 20% reduction for each day that they are late.

The percent breakdown of the Final Grade is as follows.

Tests	50%
Quizzes/Problem Sets	25%
Final Exam	25%

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

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

Math 166 Assignments

Topic	Stewart	CTC	Assignment
Angle measures		8.A	Worksheet
Definition and Evaluation of Trig Functions		8.B	Worksheet cont.
Properties of Trig Functions		8.C	259: 2,3
Domain, Range, and Graphs of Trig Functions		8.D	265: 1, 2
Combining Functions with Trig Functions		8.E	275-276: 1a,d
Derivatives of Trig Functions	3.4		216: 1,3,5,9,21,23,35 233: 11, 13 240: 7,17,25
One-To-One Functions		14.A	359: 4
Inverse of a Function		14.B	366: 5
Finding the Inverse		14.C	376: 1,5,6a-c
Derivatives of Inverse Trig Functions	232-233		234: 42,43,49

TEST 1 (Tentatively February 1)

Topic	Stewart	CTC	Assignment
Definition and Properties of Logarithmic Functions		15.A	385: 2,5,6
Graphs of Logarithmic Functions		15.B	392: 6
Solving Equations w/ Logarithmic Functions		15.C	396: 1,2,3
Derivatives of Logarithmic Functions	3.8		249: 3,7,9,11,21,29,35,37,39,41
Setting Up Equations for Related Rates Problems		11.A	313:1,2,3,4
Problem-Solving Strategies for Related Rates Problems		11.B	319: 2, 3 320: 3, 5
Related Rates	3.1O		260: 3, 5,7,9,11,13
Tangent Line Approximation		12.A	325: 2
The Differential		12.B	331 top: 4
Linear Approximation of Differentials	3.11		267:5 ,15,17,21,23,25,31,32,33

TEST 2 (Tentatively February 21)

Topic	Stewart	CTC	Assignment
Extreme and Critical Values		16.A	410 # 7a,d,f
Maximum and Minimum Values	4.1		286: 3-9 odd,15,17,19,31,33,35,37, 47,49, 51,53,59,61
The Mean Value Theorem	4.2		295: 1,3,5,11
Solving Inequalities		17A	425: 1
Graphical Interpretation		17.B	432-433: 1,3
How Derivatives Affect the Shape of a Graph	4.3		304:1,3,5,11,13,17,27,29,31,33
Indeterminate Forms and L'Hopital's Rule	4.4		313: 5,7,9,11,1,21,23,25
Putting It All Together		17.C	438: 2
Summary of Curve Sketching	4.5		323: 1,5,7,9,11,15,27,35
Graphing With Calculus and Calculators	4.6		330:1,3,9
Setting Up Equations to Solve Extreme Value Problems		16.B	414: 1, 2,4,6(for 1,2,4)
Optimization Problems	4.7		336: 3,5,7,9,11,29
Applications to Economics	4.8		346: 5,7,11,13,15,21

TEST 3 (Tentatively March 28)

Topic	Stewart	CTC	Assignment
Anti-derivatives	4.10		358: 3, 4,5,9,13,15,17,19, 21,23,25,27,29,31
Anti-differentiation as the Inverse of Differentiation		18.A	448-449: 1,3
Recognizing Anti-derivatives		18.B	453: 1,3
Sigma Notation for Sums		466-468	469-470: 3,5,6
Areas and Distances	5.1		378: 3, 5,11,13,15,17,19
The Definite Integral	5.2		390: 1,5,17,29,33,43,47,49,55
Area Under a Curve as a Definite Integral		20.A	491: 2,3,4
Other interpretations of the Definite Integral		20.B	498-499:2a,c,,e,4
The Fundamental Theorem of Calculus		20.C	505; 2,3

Topic	Stewart	CTC	Assignment
The Fundamental Theorem of Calculus	5.3		402:1,5,7,9,19,21,23,25,27, 29,35,37,39
Indefinite Integrals: Total Change Theorem	5.4		411: 5,7,9,11,17,19,23,33,45,47,53,55
TEST 4 (Tentatively April 24)			
Substitution for Indefinite Integrals		18-C	459: 3,4
The Substitution Rule	5.5		420: 1,3,5,7,9,17,21,25,49,51
Change of Variables in Definite Integrals		20.D	508: 1
FINAL EXAM (Time T.B.A.)			