Math 166
Analytic Geometry and Calculus with Review-Part II
Spring 2008

Instructor: N. Wetcher
        Office: Room 223 PPHAC
        Telephone Number (610) 861-1335
        e-mail address mensw01@moravian.edu
        Office Hours: M,W,F   8:00 -8:45 am
                        W   11:20 am-11:50 am
                             or by appointment

Course Goals:

The students will
- find derivatives using the chain rule
- review basic definitions and identities for trigonometric functions
- develop and use the derivatives of the trigonometric functions
- apply the concept of derivative to solving problems including optimization, related rates and economics
- gain a better understanding of the graphs of functions by using calculus concepts
- develop the rules for derivative of inverse trig functions and logarithmic functions
- find anti-derivatives of the basic functions
- explore the relationship between definite integrals and derivatives
- gain an appreciation of the 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: <u>Calculus, 6E</u> (Single Variable, Early Transcendentals by, Stewart
       <u>A Companion to Calculus, 2nd ed.</u> by Ebersole, Schattschneider, Sevilla, Somers

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.
- There will be no make-up for missed quizzes due to absences
- Make-ups for tests and quizzes due to <u>excused</u> absences will be given 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, <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 <u>how</u> 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 the appropriate college office.

Evaluation and Grading:

<u>Practice is vital</u> 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 exams, four quizzes, six graded homework assignments and a cumulative final exam. Classwork will be used when deciding "borderline" final grades **Late assignments due to absences 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	Stewart	CTC	Assignment
Chain rule	3.4		203-204 #7,21,47,51
Angle measures		8.A	Worksheet
Definition and Evaluation of Trig Functions		8.B	Worksheet cont.
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	Stewart	CTC	Assignment
Derivatives of Trig Functions	3.3		195: 1,3,5,9,13.21,23,25.29.33 203: 13,23,33,39,53
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	211-213		214: 45.46.47.53

Quiz 2

Topic	Stewart	CTC	Assignment
Definition and Properties of Logarithmic Functions		15.A	385. 2,3,5,6
Graphs of Logarithmic Functions		15.B	392: 6
Logarithm review		CTC	397: 1,2,3
Derivatives of Logarithmic Functions	3.6		220: 3,7,9,11,23,29,31,37,39,41,43

TEST 1 (Tentatively February 11)

Topic	Stewart	CTC	Assignment
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: 3,4,5

Topic	Stewart	CTC	Assignment
Related Rates	3.9		245: 3,5,7,9,11,13,15,17,19,21
Tangent Line Approximation		12.A	325: 2
The Differential		12.B	331 top: 4
Linear Approximation of Differentials	3.10		267: 1,3,5,15,17,19,21,23,25
Quiz 3			
Extreme and Critical Values		16.A	410 # 7a,d,f
Maximum and Minimum Values	4.1		277: 3, 7,9,17,19,21,31,33,35,37, 47,49, 51,53,57,61
The Mean Value Theorem	4.2		285: 1, 11
Solving Inequalities		17A	425: 1
Graphical Interpretation		17.B	432-433: 1,2,3
How Derivatives Affect the Shape of a Graph	4.3		295:1,3,9,11,33,35,45
Indeterminate Forms and L'Hopital's Rule	4.4		304: 5,7,9,11,17,19,21
Putting It All Together		17.C	438: 2,4 439: 2
Summary of Curve Sketching	4.5		314: 1,5,7,9,11,15,27
Graphing With Calculus and Calculators	4.6		320:1,3,5

TEST 2 (Tentatively March 19)

Topic	Stewart	CTC	Assignment
Setting Up Equations to Solve Extreme Value Problems		16.B	414: 1, 2,4,6(for 1,2,4)
Optimization Problems	4.7		328: 3,5,7,9,11,13,31,53,55,57
Anti-derivatives	4.9		345: 1-13odd,19,23,25,27,29, 31,33,39,41,57,59
Anti-differentiation as the Inverse of Differentiation		18.A	448-449: 1,3
Recognizing Anti-derivatives		18.B	453: 1,3

Topic	Stewart	CTC	Assignment
Sigma Notation for Sums		466-468	469-470: 3,5,6 Worksheet
Quiz 4			
Areas and Distances	5.1		364: 3,5,11,15,17,19
The Definite Integral	5.2		376: 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
	5.3		387:3,5,7,9,19,21,23,25,27,29,31 35,37,39
Indefinite Integrals: Total Change Theorem	5.4		397: 5,7,9,11,17,23,33,45,47, 57,59
TEST 3(Tentatively April18)			
Substitution for Indefinite Integrals		18-C	459: 3,4
The Substitution Rule	5.5		406: 1,3,5,7,9,19,21,25,51,53
Change of Variables in Definite Integrals		20.D	508: 1

FINAL EXAM (Time T.B.A.)