Math 108
Functions and Derivatives with Applications
Fall 2007

Instructor: N. Wetcher
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       Office Hours: M,W,F 8:00 -8:45 am
               F 11:20am-12:00noon
                    or by appointment

Course Goals:

    This course is designed to develop the calculus concepts that will benefit those students interested in the business and social sciences. The approach used will be especially useful for students who need to study calculus but would benefit by a review of necessary precalculus topics. The course will include the use of a graphing calculator which will enhance the student's understanding of the concepts presented.

      The students will
- review mathematical concepts and techniques needed to
- successfully study calculus.
- work with functions: algebraically, numerically and graphically.
- be introduced to the concept of limits and continuity of functions.
- develop the concept of a derivative as a rate of change and learn various techniques for finding derivatives of algebraic, exponential and logarithmic functions.
- relate the concepts introduced to curve sketching, applied problems involving optimization and rates of change.
- apply the concepts studied to real world situations such as marginal analysis.
- be able to use a graphing calculator as a tool in solving problems.

Text: <u>Calculus for Business, Economics,Life Sciences and Social Sciences, 11th ed.</u>
         by Barnnett, Zielger and Byleen

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 classwork grade.

- There will be a 20% penalty for each day that a Graded Homework is late .
- There will be no make-up for missed quizzes,
- Make-up tests are given only in extreme, pre-approved cases. If a student has to miss test it is the student's responsibility to contact me **in advance**.

Special Considerations:

Accomodations can be made for those students who have disabilities or special needs. These conditions must be verified by the appropriate college office.

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, 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.

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, best five (out of six) quizzes,homework , class participation and a cumulative final exam. Attendance and effort will be considered when determining class participation

The percent breakdown of the Final Grade is as follows.

Tests	45%
Quizzes	15%
Graded Homework and Class Participation	15%

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+		< 60	F

Math 108 Tentative Assigned Problems--Fall 2007

Topic	Section	Problems
Functions	2-1	Pages 59-61, # 33,35,53-69odd,73,75,91
Elementary Functions:Graphs	2-2	Pages 73-74 # 9-17 odd,29,31-39 odd 43.45
Linear Equations and Inequalities	1-1	Page 11 # 1,9,17,31
Linear Functions and Straight Lines	1-2	Pages 25-27 # 5-15 odd, 27,29,33,
Quadratic Functions	2-3	Pages90-92 # 23,25,27,39,57,59
Introduction to Limits	3-1	Pages 141-143 #1-25 odd,39,41,47, 49,55,57
Continuity	3-2	Pages 151-153 #11-23 odd, 27-37 odd,49,51,59
Infinite Infinity and Limits	3-3	Pages 165-166 # 9-25 odd ,31-43 odd

TEST 1 (Tentatively September 26)

The Derivative	3-4	Pages 180-181 # 3,7,9,11,27,29,39,59
Basic Differentiation Properties	3-5	Pages 189-190 # 1-17odd,

25-45odd,49,51,53,55, 71,81

Topic	Section	Problems
Differentials	3-6	Pages 197-198 #1,7,11,15,17, 19,21,23,37
Marginal Anallysis in Business and Economics	3-7	Pages 206 # 1,3,5,7,11,13,15

TEST 2 (Tentatively October 15)

Topic	Section	Problems
Exponential Functions	2-4	Pages 102-104 # 3,5,15,17,19,43, 45,47,61,63,73
Logarithmic Functions	2-5	Pages 116-117 # 1,3,7,9,13,19,31,33, 35,37,73,75
The Constant e and Continuous Compound Interest	4-1	Pages221--222 # 1,3,5,7,9,17,19
Derivatives of Exponential and Logarithmic Functions	4-2	Pages231- 232 #1-21odd,27-35 odd,51
Derivatives of Products and Quotients	4-3	Pages 239-40 # 1-13 odd, 39,45,73,83
The Chain Rule	4-4	Pages 248-249 # 17-49 odd, 63,65,67
Implicit Differentiation	4-5	Page 256 #1-11 odd.17,19,27
Related Rates	4-6	Pages261-262 # 1-11 odd,17,19,25,27

TEST 3 (Tentatively November 16)

Topic	Section	Problems
First Derivatives and Graphs	5-1	Pages 289-291 #19-29 odd,37,39, 43,47,49,79
Second Derivatives and Graphs	5-2	Pages 307-308 # 7-21 odd, 29,31

L'Hopital's Rule	5-3	Page 320 #1-13 odd, 19,21
Curve Sketching Techniques	5-4	Pages 332 #11,31,23,31
Absolute Maxima and Minima	5-5	Pages 341-342 # 11-19 odd,27,29,41
Optimization	5-6	Pages352-353 # 1-13 odd,17,19,21, 23.25

FINAL EXAM (Date T.B.A.)