Math 108
Functions and Derivatives with Applications
Spring 2006

Instructor: N. Wetcher
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Office Hours: T 8:00-9:00 am
F 11:15 am-12:15 pm
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 those 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 functions and logarithmic functions.
- relate the concepts introduced to curve sketching, applied optimization problems and applied problems involving 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.

Course Materials:

Text: Calculus for Business, Economics, Life Sciences and Social Sciences, 10th ed.
by Barnnett, Zielger and Byleen

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 will be 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 exams are given only in extreme, pre-approved cases. If you have to miss an exam it is the student's 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, 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 four exams, best four (out of five) quizzes, four problem sets, class participation and a cumulative final exam. Attendance and effort will be used to decide borderline grades.

The percent breakdown of the Final Grade is as follows.

Tests	50%
Quizzes/Problem Sets/ Class Participation	25%
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+	< 60	F

Math 108 Tentative Assigned Problems--Spring 2006

Topic	Section	Problems
Functions	1-1	Pages 18-19, # 27-49odd,79,81
Elementary Functions: Graphs and Transformations	1-2	Pages 32-33 # 9-17 odd,29,31,35,37, 39,43,45,47,65
Linear Functions and Straight Lines	1-3	Pages 49-50 # 5-25 odd, 29,33-49odd, 59,61,65
Quadratic Functions	1-4	Pages 64-67 # 9-21 odd, 23,25, 29,39,55,57
Polynomial and Rational Functions	2-1	Pages 91-92 # 13,17,19,23,25,29,39, 47,,51
TEST 1 (Tentatively February 1) Introduction to Limits	3-1	Pages 144-146 #1-7 odd, 13-21odd,39,41,47,49,55,57
Continuity	3-2	Pages 156-157 #15-23 odd, 27-33 odd, 49-53 odd
The Derivative	3-3	Pages 173-174 #1,3,7,9,11,13,29
Power Rule and Basic Differentiation Properties	3-4	Pages 183-184 # 1-17odd, 25-45odd,49,51,53, 69,81
Derivatives of Products and Quotients	3-5	Pages 192-193 #1-9 odd,27,31, 35-47 odd,65
Chain Rule: Power Form	3-6	Pages 200-201 # 7-23 odd, 31,37,31,37 39,45,47,75
Marginal Analysis in Business and Economics	3-7	Pages 210-211 # 1,3,5,7,11,13
TEST 2 (Tentatively February 28) First Derivatives and Graphs	4-1	Pages 238-241 #19-29 odd, 39,41,43,47,71
Second Derivatives and Graphs	4-2	Pages 255-256 # 7-17 odd,21, 29,33
Graphing Rational Functions	4-3	Pages 270-272 #3-11 odd,23,25,27
Absolute Maxima and Minima	4-4	Pages 281-282 # 11-19 odd,27,29,41
Optimization	4-5	Pages 293-294 #1-13 odd,17,19,21, 25,33
TEST 3 (Tentatively March 27)		

Topic	Section	Problems

Exponential Functions	2-2	Pages 106-107 # 15,17,19,43, 45,47,61,63
Logarithmic Functions	2-3	Pages 119-120 # 1,3,7,13,19, 31,33,37,73,75
The Constant e and Continuous Compound Interest	5-1	Pages311-312 # 1,5,7,9,17,19
Derivatives of Exponential Functions	5-2	Pages322-323- #1-27odd,35,37,39,57
Logarithmic Functions and Their Derivatives	5-3	Pages 333-335 #1-19 odd,35,37,49, 51,69
The Chain Rule	337-342	Pages 347-348 # 1-17odd,47
TEST 4 (Tentatively April 19) Implicit Differentiation	5-5	Page 355 #1-11 odd.17,19,27
Related Rates	5-6	Pages361-362 # 1-11 odd,17,19,25,27
FINAL EXAM (Date T.B.A.)		