

Math 106
Analytic Geometry and Calculus with Review-Part I
Fall 2006

Instructor: N. Wetcher

Office: Room 223 PPHAC

Telephone Number: (610) 861-1335

e-mail address: mensw01@moravian.edu

Office Hours: T 8:00-9:00 am

M,W,F 8:40 - 9:10 am or by appointment

Course Goals:

The students will

- review mathematical concepts and techniques needed to successfully study calculus.
- be introduced to the concept of a function.
- work with functions algebraically, numerically and graphically.
- be introduced to the concepts of limits and continuity of functions.
- develop the concept of a derivative as both a rate of change and as the slope of a tangent to a curve.
- learn techniques for finding derivatives of algebraic and exponential functions
- relate all concepts studied to real world problems
- use the graphing calculator as a tool for visualizing calculus concepts

Course Materials:

Texts: Calculus, 5E(Early Transcendentals Single Variable by Stewart

A Companion to Calculus, 2nd ed. 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 pre-approved cases. It is the student's responsibility to contact me before the test is administered

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 and a cumulative final exam. Attendance, class participation and effort will be used to decide borderline 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	50%
Quizzes and 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 106 Course Outline--Fall 2006

	Stewart	CTC	Assignment (Tentative)
Symbols and Notation		0-A	
Modes of Communication			0-B Pg 6 # 1
The Cartesian Coordinate Plane		1-A	Pg 13 # 3
Graphs		1-B	Pg 18 #3
Lines and Their Equations			1-C Pg 25 # 1,3
Parallel and Intersecting Lines		1-D	Pg 29 # 1,3,4
Distance Between Two Points		1-E	Pg 32 # 1,3
The Circle		1-F	Pg 34-35 # 1,3ab,5
Review and Extension			ExercisesPg 35-37 # 1,3,7,11,13,18
Function Notation		2-A	Pg 44 # 2,4
Domain and Range of a Function		2-B	Pg 48-49 # 2,4,5
Different Ways to Represent Functions		2-C	Pg 52 # 2
The Graph of a Function		2-D	Pg 59-61 # 1,4,5
Special Classes of Functions		2-E	Pg 72 # 1,3,5
Graphing Calculators and Computers	1.4		Pg 53 # 1,3,5,7,11
Transformations of Graphs		2-F	Pg 80-82 # 1,3,4
New Functions from Old Functions		1.3 (Pg 38-40)	Pg 46 # 3
TEST 1 (Tentatively September 15)			
Negative and Rational Exponents			7-A Pg 219-220 # 1,5a-d
Rules of Exponents		13-A	Pg 343-345 #1,3,8ab
The Natural Exponential Function			13-B Pg 349--350 # 1,4,5
Exponential Functions	1.5		Pg 62 # 3,13,15,19,25
Combinations of Functions		3-A	Pg 96-97 # 1,3,4,5,6
New Functions From Old Functions	1.3 (pg 42-45)		Pg 47 # 29,31,35,39,41,43
The Tangent and Velocity Problem	2.1		Pg 91-92 # 1,5
The Limit of a Function	2.2		Pg 102-103 # 5,7,9,15,19,23,25
Algebraic Simplification of Functions		3-B	Pg 110-111 # 1a,b, 5a,b,c
Calculating Limits Using the Limit Laws	2.3		Pg 111 #3,5,7,11-25 odds, 39, 41
TEST 2 (Tentatively October 3)			
Inequalities		3-C	Pg 116 # 1 Pg 122-123 # 2a-c,5
The Precise Definition of Limits	2.4		Pg 122-123 # 3,5,7,15,19
Continuity	2.5		Pg 133-134 # 3,5,9,17,10,23,31,35,37
Polynomials		4-A	Pg 141-42 # 3,4

	Stewart	CTC	Assignment (Tentative)
Zeros of a Polynomial Function		4-B	Pg 150 # 3,5
Domains of Functions		4-C	Pg 156 # 1,2,3
Graphical Interpretation		5-A	
Algebraic Manipulations		5-B	Pg 183 # 3,4
Limits at Infinity:Horizontal Asymptotes	2.6		Pg 145-146 # 1,3,6,8,9-23odds,37,39,41
Applications		6-B	Pg 204-205 # 5,8
Tangents, Velocity and Other Rates of Change	2.7		Pg 156 # 5,7,13,17
Derivatives	2.8		Pg 163 # 3,7,13,25
The Derivative as a Function	2.9		Pg 172-175 # 23,25,37
TEST 3 (Tentatively October 31)			
Derivatives of Polynomials and Exponential Functions	3.1		Pg 191 # 3-10,11-35odd, 39,41,45
The Product and Quotient Rules	3.2		Pg 197 # 3-19 odd,23-33 odd
Rates of Change in the Natural and Social Sciences	3.3		Pg 208 # 1-15odd,29
The Chain Rule	3.5		Pg 224-225 # 3-11odd, 17,19,21,25, 43,53
Simplifying Derivatives		7-C	Page 227 # 1-4 Page 229 #7
TEST 4 (Tentatively November 29)			
Implicitly Defined Functions		9-A	Pg 288 # 2 a-e
Implicit Differentiation	3.6		Pg 233-234 # 1,5,7,25
Solving Equations that Contain dy/dx		9-B	Page 292 # 2a-d,3a-d
Higher Derivatives	3.7		Pg 240-241 # 1,3,5,9,19 ,23,33,35,43,47
Iteration		10-A	Pg 297 # 1a,d,2b,d
Rate of Change of Rate of Change		10-B	Pg 303-305 # 1,2,4
FINAL EXAM (Date T.B.A.)			