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Moravian College

Math 166 – Analytic Geometry and Calculus with Review-Part II

Spring 2015

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Instructor – K. Moser
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    Office hours: M, W, F 10:15-11 a.m. Other times by appointment.

Course Materials – *Calculus, Single Variable, 2nd Edition* by Jon Rogawski
    A Companion to Calculus, 2nd Edition 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. Please refrain from using your cell phone or smartphone during class. NOTE: for all tests and quizzes electronic devices (cell phones, smartphones, laptops, iPads, etc.) must be away and are NOT permitted to be used.

Course Goals – Each student will
  · review basic concepts of limits and derivatives
  · review basic definitions and identities for trigonometric functions
  · develop and use the derivatives of the trigonometric functions
  · develop the rules for derivatives of inverse trigonometric functions and logarithmic functions
  · use L'Hopital's rules to find limits of indeterminate forms
  · will review how to differentiate formulas implicitly
  · understand the relationship between the graph of a function and its derivative
  · sketch the graph of a function using derivatives and limits
  · apply the concept of derivative to solving problems including optimization, related rates and economics concepts
  · find antiderivatives of the basic functions
  · explore the relationship between definite integrals and derivatives
  · gain an appreciation of the Fundamental Theorem of Calculus
  · find areas, distances and net change using definite integrals

Attendance – Regular attendance is necessary in order to be most successful. Poor attendance will affect a students class participation grade. Make-ups for tests and quizzes will be given only for excused absences. Make-ups must be scheduled and completed in a timely manner. An excused absence is one that is okayed by the professor before the test or one for which a medical excuse can be produced. Students are responsible for all work covered in class and all assignments, even if they are absent from class.

Homework – Working together: When faced with difficulty in mathematics, it helps to work through prob- lem with a colleague. I welcome and encourage you to work with friends, tutors and myself in working through completing homework assignments. When you work through the problems connected with each reading, you are welcome and encouraged to work with your friends and classmates. Feel free to exchange ideas as your work through the prob- lems. HOWEVER: when writing your homework response, you must work on your own. The final response you write on your homework should be yours and yours alone. I recommend that while you may complete the scratch work for all of your homework with a classmate, you should write the final copy of your homework when you are alone. Ultimately, YOU are responsible for understanding how to find a solution to each assigned problem.

Blackboard – Go to Blackboard.moravian.edu and under the Course tab, do a Course Search for Calculus with Review. There is just one course page for both sections A and B. Enroll in this course. Please do this as soon as possible.

Course information will be located on our Blackboard course site. A copy of the syllabus, calendar for the course and trigonometry practice sheets are already posted. Use any of these materials as needed.

There will be 11 assignments given via Blackboard. These are located on our course site in the "Assignments" section. One of these will be due each Monday at 7:30am. It will cover the material taught during the previous week. Promptly at 7:30am the assignment will become unavailable. No make ups will be allowed. You will have the ability to complete each assignment as many times as you wish before the deadline. Your best score will be kept. Each assignment will have approximately 5 questions. All 11 assignments will be averaged together to count as 1 quiz score.

Student Expectations – Students should be spending approximately ten hours per week outside of scheduled class times on assigned reading and exercises, completing graded problem sets and studying for quizzes and tests.

After completing this course, students are expected to be able to

- apply the rules of derivatives learned in Math 106 to trigonometric functions

- find the derivatives of logarithmic functions

- use logarithmic differentiation when appropriate

- use L'Hopital's rule when appropriate

- sketch polynomial and rational functions by identifying extreme points, inflection points and asymptotes

- use implicit differentiation while solving related rates problems

- solve real world extreme value problems

- find antiderivatives of simple functions

- use the Fundamental Theorem to determine areas and solve net change problems

Evaluation and Grading – Practice is vital for developing the required Calculus skills. It is necessary that the student does all homework exercises assigned. In addition to the daily assignments (not graded) there will be graded homework assignments approximately every two weeks. **These assignments will be graded with a 20% penalty for each day that they are late.** The weekly Blackboard assignments will be averaged together to count as a quiz score. The students grade will be determined on the basis of three exams, five quizzes (the lowest out of six scores will be dropped), six graded homework assignments, class participation, and a cumulative final exam.

Final grades will be computed based on the weights below*.
- · Graded homework (15%)
- · Quizzes (15%)
- · Tests (45%)
- · Cumulative final exam (25%)

The Final grade will be based on the following rubric.

Average	Grade
$x \geq 92$	A
$90 \leq x < 92$	A-
$88 \leq x < 90$	B+
$82 \leq x < 88$	B
$80 \leq x < 82$	B-
$78 \leq x < 80$	C+
$72 \leq x < 78$	C
$70 \leq x < 72$	C-
$68 \leq x < 70$	D+
$62 \leq x < 68$	D
$60 \leq x < 62$	D-
$x < 60$	F

*For borderline cases, class participation will help decide the Final Grade. It is important to remember that class attendance has a definite effect on how I view your class participation.

Disclaimers – This syllabus is subject to change through the semester. Any updates to the syllabus will be announced in class. The instructor reserves the right to apply qualitative judgment in determining final grades for the course.

Learning Disability Accommodations – Students who wish to request accommodations in this class for a disability must contact Ms. Elaine Mara, assistant director of academic support services for academic and disability support, at the lower level of Monocacy Hall, or by calling 610-861-1401. Accommodations cannot be provided until authorization is received from the Academic Support Center.

Mathematics Department Academic Honesty Policy – The Mathematics Department supports and is governed by the Academic Honesty Policy of Moravian College as stated in the Moravian College Student Handbook. The following statements will help clarify the policies of members of the Mathematics Department faculty.

In all at-home assignments which are to be graded, you may use your class notes and any books or library sources. **When you use the ideas or thoughts of others, however, you must acknowledge the source. You also may not use a solution manual** or the help (orally or in written form) of any individual other than your instructor. If you receive help from anyone other than your instructor or if you fail to reference your sources, you will be violating the Academic Honesty Policy of Moravian College. **You may work with your fellow students on homework which is not to be graded. You are responsible for understanding and being able to explain the solution of all assigned problems, both graded and un-graded.**

All in-class or take-home tests and quizzes are to be completed by you alone without the aid of books, study sheets, or formula sheets unless specifically allowed by your instructor for a particular test

Math 166 Course Outline Spring 2015

Topic	Rog.	CTC	Daily Assignments (Tentative)
Derivative Review	Rev.		Pg 204 # 33, 35, 57, 95, 107
Angle Measures		8-A	Pg 237 # 1, 2 (worksheet)
Definition of Trig Functions		8-B	Pg 247 # 1 (worksheet), 6bc, 7
Trigonometric Functions	1.4		Pg 31 # 1-4 all, 9, 11, 13, 19, 21
Prop. of Trig Functions		8-C	Pg 259 # 1, 2, 3
Domain, Range, Graphs		8-D	Pg 265 # 1, 2
QUIZ 1			
Trigonometric Limits	2.6		Pg 99 # 17, 19, 21, 29, 31, 33, 37
Trig Functions Derivatives	3.6		Pg 167 # 1-27 odd, 31, 45
Chain Rule (revisited)	3.7		Pg 175 # 17, 19, 29, 37, 51, 55
Inverse Trig Functions	1.5		Pg 42 # 23, 27, 29, 31, 33
Inverse Function Derivatives	3.8		Pg 181 # 19, 23, 25, 33
QUIZ 2			
Logarithm Review		15-A	Pg 385 # 5acf
Exp. and Log. Derivatives	3.9		Pg 187 # 1-11 odd, 15, 17, 21, 23, 25, 31, 41, 45
TEST 1			(Tentatively February 11)
Problem Solving for RR		11-B	Pg 319 # 2, 3
Setting up Equations for RR		11-A	Pg 320 # 2, 4, 6
Related Rates	3.11		Pg 199 # 1-17 odd, 23
QUIZ 3			
Linear Approx. and Apps	4.1		Pg 213 # 1, 3, 7, 9, 13, 17, 37
Extreme and Critical Values		16-A	Pg 408 # 2, 3
Extreme Values	4.2		Pg 222 # 1, 3, 5, 9, 21, 31, 33, 35, 37, 39, 47, 51, 55, 61, 65
The MVT and Monotonicity	4.3		Pg 232 # 1, 3, 5, 15-25 odd, 31, 37, 43, 51
TEST 2			(Tentatively March 6)
The Shape of a Graph	4.4		Pg 238 # 1-11 odd, 17, 23, 25, 27, 31, 37-45 odd, 53, 55
Graphical Interpretation		17-B	Pg 432-433 # 1-3
L'Hopital's Rule	4.5		Pg 246 # 1, 3, 9, 11, 13, 19, 21, 25, 27, 39
Putting it all Together		17-C	Pg 438 # 5
Graph Sketching	4.6		Pg 255 # 13, 19, 25, 31, 53, 55, 57, 59
QUIZ 4			
Equations for EV Problems		16-B	Pg 414 # 1, 2, 4, 6(for 1, 2, 4)
Applied Optimizations	4.7		Pg 262 # 1, 3, 5, 9, 11, 19, 33, 39
Antiderivatives	4.9		Pg 281 # 1-29 odd, 47-53 odd, 63-69 odd, 75
TEST 3			(Tentatively April 13)
Areas	5.1		Pg 296 # 7, 13, 17, 21, 23, 27
The Definite Integral	5.2		Pg 307 # 1-9 odd, 13, 15, 23, 25, 27, 33, 35, 37, 43, 45, 55, 57
Area Under a Curve		20-A	Pg 491 # 3, 4, 5
The FTC, Part 1	5.3		Pg 314 # 1-25 odd, 33, 37, 39
The FTC, Part 2	5.4		Pg 320 # 7-23 odd, 29, 31
QUIZ 5			
Net Change as Integral	5.5		Pg 326 #9-15 odd, 25, 31, 33, 35, 471-15 odd
FINAL EXAM:			166B: Monday, May 4 - 1:30 pm
			166A: Thursday, May 7 - 1:30 pm