Calculus with Analytic Geometry 1, Fall 2016
Math 111, Section F
Dr. John Gemmer, gemmerj@wfu.edu
Office: 160 Manchester Hall **Phone:** (336) 758-5386
Course Website: http://users.wfu.edu/gemmerj/Math111-F.html
Office Hours: Tuesday 3-5, Wednesday 1-2, Thursday 2-4
Class Meeting Times: TWThF 10:00-10:50
Class Location: Manchester Hall 125

Textbook: Stewart, James. *Calculus 8th edition.* Cengage Learning, 2015.

Prerequisites: Chapter 1 sections 1 through 3 of our text covers representations of functions, standard types of functions, and manipulation of functions. This material is a prerequisite for this course. I will spend three lectures reviewing this material but it will only be a superficial coverage. However, knowledge of this material is *critical* to your performance in this course. A students understanding of precalculus topics is strongly correlated with their performance in this course. *As part of this course all students will be required to purchase and complete ALEKS precalculus review (further details below).*

Course Description: An introduction to calculus of a single variable with equal emphasis on the concepts of limits, derivatives and integrals as well as applications of derivatives and integrals. Specific topics will include limits, continuity, definition of a derivative, differentiation rules, related rates, derivative of trigonometric functions, chain rule, implicit differentiation, graphing, optimization, anti-differentiation, Riemann sums, integration, first and second fundamental theorem of calculus.

Course Rationale: The development of The Calculus is one of the most profound intellectual achievements of humankind. Applications of calculus have allowed us to understand and manipulate the universe around us in ways unimaginable to our ancestors. For example, the modern theories of electric fields and quantum mechanics which are crucial to much of our modern technological achievements are written in the language of calculus. Moreover, much of modern research in mathematics uses and extends calculus to fuel further technological and scientific breakthroughs. Finally, many jobs in science, economics and business are becoming more and more quantized and the demand for mathematically sophisticated employees is high.

This course will provide an introduction to the basic principles of calculus along with some introductory applications of calculus to problems in optimization and related rates. Along the way students will further improve their analytic and computational skills, mastery of abstract concepts, quantitative as well as qualitative analysis, and their ability to write mathematics.

Class Delivery: The course material will be delivered through a combination of lectures and in class group assignments. Evaluation of the students understanding of the material will be assessed through written homework assignments, online assignments, in-class exams, in class quizzes, in class group work and a final exam.

Course Policies:

✦ **Grading:** Your grade will be based on:
- Weekly written homework: 10%
- Webassign: 10%
- Quizzes: 5%
- Group work: 5%
- ALEKS final assessment: 10%
- Three in-class exams: 30% (10% each)
- Final Exam: 30%

You are guaranteed the following grades if your final percentage lies within the following ranges:

90-92.9: A-	**93-100: A**	
80-82.9: B-	**83-86.9: B**	**87-89.9: B+**
70-72.9: C-	**73-76.9: C**	**77-79.9: C+**
60-62.9: D-	**63-66.9: D**	**67-69.9: D+**

✦ **Written homework:** Written homework will be assigned most weeks on Thursday and will be due Friday at the beginning of class the following week. The assigned homework problems will be posted on the course website. Late homework will not be accepted under any circumstances. However, I will drop the lowest homework score from your grade. Written homework must consist of solutions that show all steps, be your own work and be written clearly using complete sentences as appropriate (see homework policy).

✦ **Webassign:** In addition to written homework, we will be using an online homework system called Webassign for submission of assignments that supplement the lectures. Webassign can be accessed at webassign.com. Our class key is:

wfu 4073 3733

Webassign assignments typically will be due every Tuesday, Wednesday and Thursday by 10:00 AM. Exact due dates will be available in webassign.

✦ **Quizzes:** On most Fridays there will be a short 10 minute in-class quizze. These quizzes will consist of a very short problem that will test your knowledge of the prior lectures. These quizzes are to help both the students *and* the instructor understand concepts that students may be struggling with. In addition, when covering differentiation and anti-differentiation rules there will often be a quiz *every class period*. All quizzes will be announced in class. *There will be no "pop" quizzes*. There are no retakes for missed quizzes, however I will drop the lowest quiz score from your final grade. Quizzes are often indicative of how the instructor grades and what concepts will be emphasized on exams.

✦ **Group work:** Throughout the course there will be several unannounced "class works". These consist of structured group assignments that will be completed during class time. These assignments will generally be exploratory allowing students to learn a new concept through a "hands on" approach.

✦ **ALEKS:** Every student is required to purchase the ALEKS program and complete an ALEKS precalculus review. This will take place in the first six weeks of the semester. Your final score in ALEKS will be worth 10% of your grade in the course. You may also register for a one hour course Math-105L, for more extensive ALEKS review. Detailed information about this will be provided on the first day of class and Friday September 2.

✦ **In-Class Exams:** There will be three in-class exams and a comprehensive final in the course. The tentative dates of these exams are September 23, October 20 and November 11. You must contact me by **September 6** if you have any university-approved conflicts with these dates. Otherwise you may miss the exam only in the case of serious illness or emergency.

✦ **Final Exam:** The final exam is scheduled during the Math Block final exam period, at 9:00am on Friday, December 16.

Tentative Course Schedule:
1. Precalculus review (1 week).
2. Limits and continuity (1-2 weeks).
3. Derivatives (2-3 weeks).
4. Applications of derivatives (3 weeks).
5. Anti-differentiation (1-2 weeks).
6. Integration (2-3 weeks).

Important Dates:
1. September 23: Exam 1.
2. October 10: ALEKS final assessment.
2. October 20: Exam 2.
3. November 11: Exam 3.
4. December 16: Final exam.

The Honor Code: At Wake Forest, we expect you to behave as honorable citizens of the class, the university, and the world as a whole. When you complete an assignment with your name on it, you are representing that everything you are turning in is your own work. That means that you do not copy from other students, textbooks, or websites. If at any time I become aware of cheating or plagiarism in this course, I will submit the information to the honor council.