



## University of Pennsylvania Math 103 Introduction to Calculus Fall 2013

**Professor :** Nakia Rimmer

**Email :** rimmer@math.upenn.edu

**Office :** DRL 4C21

**Office Hours :** Tue. 1-2 pm, Wed. 4-5 pm, Thur. 12-1 pm, or by appointment

**Course objective:** To understand and apply the basic concepts found in an introductory calculus course, namely limits, differentiation, and integration.

**Class:** Lecture will meet three times a week on Mondays, Wednesdays and Fridays from 10:00-10:50 pm. Students will also be required to attend a 50 minute recitation once weekly. Recitation will be a question and answer session run by a teaching assistant. Attendance in recitation is mandatory, you will take a weekly quiz in recitation and there will be no make-up quizzes. Lecture attendance will be taken and will be used when a student's grade ends up on the cutoff between two different letter grades. It is very important that you attend and participate in the lecture. It will be interactive, so your participation is critical.

**Classroom Decorum:** Students must be on time for class and should refrain from leaving and re-entering the classroom during lecture. If a student has a legitimate reason for being excused early from class, then he or she should discuss this with me before class. Cell phones may not be used during class (**no texting**) and should be silent. Laptops may not be used for anything other than taking notes. It is important that you refrain from excessive talking during lecture as a courtesy to your fellow students. Students will receive Course Problem Notices (CPNs) for poor attendance, poor test grades, poor homework or quiz grades, or poor behavior in lecture.

**Course Webpage :** <http://www.math.upenn.edu/~rimmer/math103/>

Blackboard will be used as a grade server so that students can always know their standing in the course. There will be a lecture blackboard site (for exam grades) and a recitation blackboard site (for hw and quiz grades). A third blackboard site called the 103 Plenary site will be used for online discussion board help. Access to blackboard: <http://www.library.upenn.edu/courseware/> and then click on "Login".

**Text:** *Thomas' Calculus*, Custom Edition for the University of Pennsylvania. Pearson 2012. Package ISBN : 978-1-256-82329-2. It must be bought in the University bookstore for the relatively low price of \$100 (this same text is used in Math 104 and Math 114).

Don't buy the non-custom Penn version of the text because it won't be bundled with the access code to My Math Lab.

**Homework:** 20% of your final grade

10% online HW: We will use the online homework system called My Math Lab, the login link is:

<http://portal.mypearson.com/mypearson-login.jsp> . An access code comes with the purchase of the new text from the bookstore. The courseID is : **rimmer93141**. For details on creating a My Math Lab account and connecting to our course, follow the link:

<http://hans.math.upenn.edu/~rimmer/math103/homework/103mymathlabinstr.pdf> . You will enter answers symbolically or numerically to problems that are very similar to the problems that are in the textbook. You will know immediately rather or not you got the question right and will have multiple

times to enter in a solution. More often than not you will be given a hint to tell you what you might have done wrong. Some of the questions have multiple choices but the majority of them will be short answer. If you are having trouble with a problem you will be able to get help either by watching a video solution to a similar problem or by going through a step-by-step process to solve a similar problem. Problems will be chosen algorithmically (similar problems with different constants involved) so that few students are working on the same exact problem. Five percent of the total points available will be dropped.

10% Hand-in HW: Exam ready questions mostly taken from past final exams. Handed in weekly at the beginning of lecture on Fridays. It will be graded for completeness. The first one will be due on Friday Sept. 6<sup>th</sup>. You must make sure your recitation number is on the front page and that it is stapled. We will drop the lowest score.

**Quizzes:** 10% of your final grade

You will have weekly quizzes during the last 10-15 minutes of recitation over homework problems that were turned in the previous week. Think of the quizzes as mini-exams. The lowest quiz score will be dropped. There will be no make-up quizzes given. Quizzes will start in week 3 (9/10 and 9/12).

**Exams:** 70 % of your final grade

There will be three closed book in-class midterm exams (Lowest 10%, Other two 15% each). You are not allowed to use a calculator during the midterm and final exams but you can prepare and use one 8.5" by 11" sheet of paper (both sides) with handwritten notes of your choice. The final exam will be cumulative (covers all material), common (all 103 students take the same exam) and take place on Tuesday December 17th from 9-11 am. It will count for 30 % of your final grade. Since the exams are given in class there will be absolutely **no** make-up exams.

The final exam is used to set the curve at the end of the course, it determines the grade distribution. For example, after grading the final exam the Math 103 professors get together and decide what grade is considered an A, B, C, D, or F and then we tally the performance of each class to determine the distribution of each grade. Say for instance the distribution for my class is 32% A, 38% B, 25% C, 4% D and 1% F. This then becomes the course grade distribution, all students will be ranked from highest to lowest and the top 32% will be given some form of an A, the next 38% will be given some form of a B, and so on. The + or – cutoffs are determined by gaps in the distribution. No curve occurs until the end of the course so each midterm isn't curved. I will give you an idea of your ranking after each midterm so that you can get a feel for where you stand in the course.

**No Calculator :** Using a graphing calculator (or any type of calculator) is forbidden in this class.

**ADA Compliance :** The Office of Student Disabilities Service (SDS) is part of the Weingarten Learning Resources Center. It provides accommodated exams and assistive technology (along with many other services) to students that self-identify in compliance with Section 504 of the Rehabilitation Act and the Americans with Disabilities Act. Please see their website

( [http://www.vpul.upenn.edu/lrc/sds/current\\_students.php](http://www.vpul.upenn.edu/lrc/sds/current_students.php) ) for more information.

This most often takes the form of students that require extra time to take an exam taking the exam at the Weingarten Center.

**Code of Academic Integrity :** The following is from the University's website on academic integrity "Since the University is an academic community, its fundamental purpose is the pursuit of knowledge. Essential to the success of this educational mission is a commitment to the principles of academic integrity. Every member of the University community is responsible for upholding the highest standards of honesty at all times. Students, as members of the community, are also responsible for adhering to the principles and spirit of the following Code of Academic Integrity found here [http://www.upenn.edu/academicintegrity/ai\\_codeofacademicintegrity.html](http://www.upenn.edu/academicintegrity/ai_codeofacademicintegrity.html) If a student is unsure whether his action(s) constitute a violation of the Code of Academic Integrity, then it is that student's responsibility to consult with the instructor to clarify any ambiguities.

**Get Help :** Before it's too late, please seek out help. One definition of too late is after you receive a low exam 1 score. The hardest part of the course is keeping up with the pace. Each lecture will cover about 1 to 1 ½ sections of material. If you miss a class and don't get a chance watch the archived video before the next class, then you will find it hard to catch up. Each section builds off of the previous one so waiting until the weekend to catch up might be impractical.

1. Ask lots of questions in recitation. Take advantage of recitation, don't just show up to take the quiz.
2. Instructor's office hours
3. TA's office hours

From the Math Department:

<http://www.math.upenn.edu/ugrad/calc/help/schedule.html>

4. Sunday Night Reviews (7-9pm each week)
5. Math/Maple Center (Mon. - Thurs. 6:30-9:30pm in various dorms)
6. Online Help (Discussion board on Blackboard's **plenary** site for your class monitored M-Th 9pm - 1am)

From the University:

7. Learning Resource Center, offered by the Weingarten Learning Resources Center, in Stouffer Commons, Suite 300, 3702 Spruce Street, Philadelphia PA 19104, tel: (215) 573-9235 <http://www.vpul.upenn.edu/lrc/>
8. The Tutoring Center : <http://www.vpul.upenn.edu/tutoring/index.php>
9. Math Department Approved Tutors : <http://www.math.upenn.edu/ugrad/tutors.html>

**Are you ready? :** The first chapter covers a review of algebra, analytic geometry, trigonometry and pre-calculus. Your first homework assignment will be on this review material but we won't spend that much time on this in lecture. You must take a diagnostic exam in your first recitation, this exam is designed to test these review skills that you should know prior to taking Math 103. If you score exceptionally poor on this exam it is recommended that you consider taking Math 101 Algebra and Trigonometry a half-credit course offered in the evenings through LPS. A mediocre score on the placement exam helps you to identify gaps in your background that you need to plug as soon as possible.

Calculus Start-up Program : <http://www.vpul.upenn.edu/tutoring/calculusstartup.php>

**Topics covered in Math 103:**

**Section Title**

1.1	Functions and Their Graphs
1.2	Combining Functions; Shifting and Scaling Graphs
1.3	Trigonometric Functions
1.4	Graphing with Calculators and Computers
1.5	Exponential Functions
1.6	Inverse Functions and Logarithms

2.1	Rates of Change and Tangent Curves
2.2 + start of 2.4	Limit of a Function, Limit Laws and One-Sided Limits
2.5	Continuity
2.6	Limits Involving Infinity

3.1	Tangents and the Derivative at a Point
3.2	The Derivative as a Function
3.3	Differentiation Rules
3.4	The Derivative as a Rate of Change
3.5	Derivatives of Trigonometric Functions
3.6	The Chain Rule
3.7	Implicit Differentiation
3.8	Derivatives of Inverse Functions and Logarithms
3.9	Inverse Trigonometric Functions
3.10	Related Rates
3.11	Linearization and Differentials

**Section Title**

4.1	Extreme Value of Functions
4.2	The Mean Value Theorem
4.3	Monotonic Functions and the First Derivative Test
4.4	Concavity and Curve Sketching
4.5	Indeterminate Forms and L'Hospital's Rule
4.6	Applied Optimization
4.8	Antiderivatives

5.1	Area and Estimating with Finite Sums
5.2	Sigma Notation and Limits of Finite Sums
5.3	The Definite Integral
5.4	The Fundamental Theorem of Calculus
5.5	Indefinite Integrals and the Substitution Method
5.6	Substitution and Area Between Curves

7.1	The Logarithm Defined as an Integral
7.3	Hyperbolic Functions

Math 103 Fall 2013 Sect. 001 MWF 10-11 am DRL A1

August / September				
Monday	Tuesday	Wednesday	Thursday	Friday
		28 Intro./Rev.	29	30 Rev.
2 Labor Day No Class	3	4 2.1	5	6 2.2/2.4
9 2.4	10	11 2.5	12	13 2.6
16 3.1/3.2	17	18 3.3	19	20 3.4/3.5
23 3.6	24	25 3.7	26	27 Rev.

October				
Monday	Tuesday	Wednesday	Thursday	Friday
30 Exam 1	1	2 3.8	3	4 3.9
7 3.1	8	9 3.11	10 Fall	11 Break
14 4.1	15	16 4.2	17	18 4.3
21 4.4	22	23 4.5	24	25 Rev.
28 Exam 2	29	30 4.6	31	

November				
Monday	Tuesday	Wednesday	Thursday	Friday
				1 4.6
4 4.6	5	6 5.1/5.2	7	8 5.3
11 5.4	12	13 5.5	14	15 5.5
18 5.6	19	20 5.6	21	22 7.1
25 7.3	26	27 Rev.	28 Thanksgiving	29 Break

December				
Monday	Tuesday	Wednesday	Thursday	Friday
2 Rev.	3	4 Exam 3	5	6 Rev.
9 Rev.	10	11 Reading	12 Days	13 Finals
16 Finals	17 Final Exam 9-11am	18 Finals	19 Finals	20 Finals

Drop Period Ends October 4th  
 Withdrawal Period Ends November 8th  
 Last Day of Classes December 10th