

Syllabus: Math 135, Summer 2007

Information

Instructor: Paul Raff

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Class Time: Mondays, Wednesdays, Fridays 6:00-8:30pm

Location: Hill 525

Textbook: *CALCULUS and Its Applications*, Custom Edition for Rutgers University, published by Pearson Custom Publishing. Copyright 2004 and earlier.

Office Hours: Wednesdays and Fridays, 4:30-6:00pm

Office Hours Location: Hill 606

Course Webpage: <http://www.eden.rutgers.edu/~praff/135-summer07>

General Outline of the Semester

This is the basic Calculus I course. It assumes knowledge of the basic topics of precalculus. The major topics covered will be: limits, derivatives, and basic integration.

The grade breakdown will be as follows:

Quizzes	20%
WebWorK	20%
Exam 1	15 %
Exam 2	15 %
Final Exam	30 %

It is very important to remember that this is not different in any way from a Fall or Spring semester 135 class except for its length. The same concepts are covered at the same intensity. Since we only have 8 weeks (as opposed to the usual 14), it is even more important to stay abreast of the topics covered. You will *need* to perform work outside of class on a daily basis.

General Outline for a Single Class

Most evenings will start with a quiz that covers the homework problems that were assigned the previous class. Homeworks will not be collected, but I will be happy to look and comment on written homework solutions if handed in. The quizzes will be collected and then I will go over the quiz just taken. Afterwards, we will go over the topics for the day, which will include doing numerous examples. There will be a 10- to 15-minute break in the middle of the 2.5-hour class period.

If hungry, bring food! The class period is long, which is a necessary evil of a summer course. I will usually have a drink and a sandwich with me while teaching, and I suggest you do the same. It's not healthy to go hungry!

WebWorK

WebWorK is an online method for doing homework problems. Each WebWorK problem set will consist of 10-15 problems. For each problem, you will have an unlimited number of tries. WebWorK can be accessed by going to this webpage:

<https://webwork.rutgers.edu/webwork2/Raff/>

Your user ID is your Rutgers ID (RUID) number, and your password is also initially your RUID number. It is suggested that you change your password immediately!

WebWorK assignments will be posted on Fridays by midnight and will be due the second Tuesday afterwards. For example, the WebWorK assignment that is due on Tuesday, June 19 will be posted on Friday,

June 8. There will be no late or make-up submissions for WebWorK, due to the copious amount of time given for the assignments.

Quiz Make-ups

Quiz make-ups will happen during office hours. To make up a quiz, you must have a valid excuse and proper documentation.

Frequently-Asked Questions and Vague Answers

Is there a curve in this class? It's my opinion that there is no college-level course anywhere on earth that isn't graded on a curve. Sometimes I make the exams harder or easier than I expected.

I don't know how to do (fill in problem here). The answer is simple: e-mail me. Try your best to do the math in text, and more often than not I can understand what you are trying to ask. I can access all your WebWorK problems so all you need to do is tell me which ones. It is not enough, however, to say simply "I don't know how to do (problem)." You need to tell me what you've tried or what you don't understand.

I did all the suggested homework problems and I did all the extra problems in the book, but I still can't understand (fill in topic here). What do I do? The first thing you should do is ask yourself the following: "Did I do the problems just to do them, or did I do the problems to understand the material?" This class is about *understanding* foundational mathematical concepts. It is not simply about doing math problems.

Day-by-day Schedule

The next page shows what we'll be doing throughout the summer. I will try to stick to the schedule as much as possible.

Session #	Date	Section(s)	Broad Topics	Problems to do
1	May 30	1.1	Precalculus Review	2, 4, 14, 24, 30, 34, 42
		1.2		2, 12, 13, 20, 32, 46, 50
		1.3		12, 16, 25, 29, 30, 34, 40, 48, 50, 61, 64
		1.4		
2	June 1	2.1	Definition of Limit	1, 2, 3, 4, 5, 6, 12, 28, 45
		2.2	Computing Limits	6, 8, 12, 14, 18, 20, 24, 25, 30, 40, 41, 43, 49, 54, 57
3	June 4	2.3	Continuity Intermediate Value Theorem	12, 15, 19, 23, 28, 33, 34, 38, 40, 43, 44
4	June 6	2.4	Exponents and Logarithms	14, 15, 19, 22, 42, 46, 47, 48, 56, 59, 61, 69
5	June 8	3.1	Definition and Meaning of Derivative	6, 8, 10, 12, 14, 22, 26, 27, 30, 33, 36, 42, 45, 47, 48
6	June 11	3.2	Finding Derivatives	8, 9, 12, 15, 18, 24, 29, 37, 43
		3.3	Derivatives of Trig Functions	1, 4, 11, 17, 18, 29, 37, 41, 52
7	June 13	3.4	Derivatives as Rates of Change	3, 6, 8, 13, 14, 18, 21, 24, 36, 41, 50, 51, 55
8	June 15	3.5	Chain Rule	6, 8, 12, 21, 24, 31, 40, 44, 48, 52, 54, 56, 60
			Review	
9	June 18		EXAM 1	
		3.6	Implicit Differentiation	1, 4, 7, 8, 11, 13, 15, 18, 34, 35, 39, 43, 44, 46, 60, 62
10	June 20	3.6	More Implicit Differentiation	
		3.7	Related Rates	2, 4, 9, 13, 15, 16, 17, 18, 22, 23, 24, 25, 26, 27, 28, 33, 40, 42
11	June 22	3.8	Linear Approximations	3, 4, 8, 13, 19, 20, 23, 24, 25, 28, 29, 32, 34, 35, 40, 42, 44, 45
12	June 25	4.1	Optimization	4, 5, 7, 11, 12, 18, 20, 26, 28, 30, 33, 37, 43, 51, 53, 55
13	June 27	4.2	Mean Value Theorem	7, 10, 16, 21, 22, 27, 30
		4.3	First/Second Derivative Tests	6, 7, 12, 13, 17, 18, 21, 24, 26, 27, 29, 32, 36, 38, 41, 42, 44, 49
14	June 29	4.4	Limits at Infinity	10, 11, 12, 15, 20, 23, 27, 29, 30, 32, 35, 38, 40, 42, 47, 48
		4.5	l'Hôpital's Rule	1, 3, 4, 6, 7, 10, 12, 13, 14, 19, 27, 28, 32, 33, 42, 45, 46
15	July 2	4.6	Applications: Physical Problems	3, 4, 7, 8, 10, 12, 16, 17, 21, 24, 26
16	July 4		No Class (University Holiday)	
17	July 6	4.7	Applications: Business Problems	3, 4, 5, 6, 7, 8, 10, 13, 16, 17, 18, 28, 35, 36, 39, 45, 48
			Review	
18	July 9		EXAM 2	
		5.1	Integration	7, 8, 9, 10, 11, 19, 23, 26, 40, 41, 43, 44, 46
19	July 11	5.2	Riemann Sums	3, 6, 11, 18, 21
20	July 13	5.3	The Definite Integral	3, 4, 6, 19, 22, 26, 27, 28
21	July 16	5.4	Fundamental Theorems	2, 7, 10, 15, 16, 26, 29, 33, 36, 39, 44, 49, 54
22	July 18	5.5	Integration by Substitution	1, 3, 6, 9, 10, 15, 17, 18, 23, 29, 32, 42, 46, 51, 53
			Review	
23	July 20		FINAL EXAM	