

# Syllabus: Math 152, Summer 2006

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## Information

**Instructor:** Paul Raff

**e-mail:** praff@math.rutgers.edu

**Class Time:** Monday - Thursday, 8am-10am

**Location:** ARC 110

**Textbook:** *Calculus*, James Stewart, Edition 5e

**Office Hours:** Monday-Wednesday, 10am-11am

**Office Hours Location:** Hill 521

**Course Webpage:** <http://www.eden.rutgers.edu/~praff/152>

**Days off:** Monday, July 3 (my holiday) and Tuesday, July 4 (university holiday)

## General Outline of the Semester

This is Calculus II for students of Math and the Physical Sciences. It is a natural extension of 151, which ended in basic integration. The topics in this course include, but is not limited to, advanced integration, differential equations, sequences, series, and applications. There will be two exams during the 8-week period, and there will be a final exam on the final day of class.

The grade breakdown will be as follows:

Quizzes	20%
Exam 1	20 %
Exam 2	20 %
Final Exam	40 %

It is very important to remember that this is not different in any way from a Fall or Spring semester 152 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 mornings 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-hour class period.

**Bring breakfast!** This class is early in the morning. I will usually have coffee and a sandwich with me while teaching, and I suggest you do the same. It's not healthy to skip breakfast!

## Grades

Grades will be updated frequently and posted on the website. At the bottom of this page is your name and a unique ID number for the gradebook. Keep this number to yourself!

Name: RACER X    Number: 00000

## Day-by-day Schedule

Session #	Date	Section(s)	Topics	Problems to do
1	May 30	6.2	Areas, volumes	3, 6, 7, 9, 12, 17, 26, 28, 54, 55
2	May 31	6.3	More volumes	1, 4, 39, 40, 45
3	June 1	6.4	Work, average values	7, 8, 13, 15, 19, 23; 6.5: 2, 5, 9, 19
4	June 5	7.1	Integration by parts	3, 8, 10, 13, 15, 20, 21, 41, 42, 45, 56, 62
5	June 6	7.2	Trig integrals	2, 7, 19, 23, 24, 59, 64
		7.3	Trig substitution	7, 12, 13, 16, 20, 40
6	June 7	7.4	Partial fractions	1, 3, 5, 9, 15, 16, 20, 28, 45, 48, 60
		7.5	Integration strategies	1, 4, 8, 9, 19, 22, 29, 57, 74
7	June 8	7.7	Integral approximation	1, 7, 8, 9, 20, 22, 30, 31, 42
8	June 12	7.8	Improper integrals	2, 3, 5, 6, 7, 19, 24, 49, 54, 58
9	June 13	8.1	Arc length	3, 8, 11, 34
		8.2	Surface area	1, 4, 5, 6, 14, 31
10	June 14	9.1	Differential equations	1, 3, 4, 6, 9, 10
		9.2	Direction fields	1, 3, 4, 5, 6, 9, 11
11	June 15		Catch up and review	
12	June 19		EXAM 1	
13	June 20	9.3	Separable equations	1, 4, 19, 20, 21, 37, 39
		9.4	Exponential growth	3, 4, 5, 9, 10, 14
14	June 21	11.1	Sequences	2, 5, 6, 12, 13, 15, 18, 21, 26, 32, 34, 45, 46, 61, 64
		11.2	Series	11, 14, 17, 18, 21, 22, 27, 38, 41, 44, 49
15	June 22	11.3	The integral test and estimates	3, 7, 9, 13, 16, 21, 28, 31, 34
16	June 26	11.4	Comparison tests	3, 4, 5, 6, 9, 17, 18, 20, 23, 26, 33, 36
17	June 27	11.5	Alternating series	3, 6, 7, 12, 17, 22, 28, 31
		11.6	Absolute convergence	2, 3, 5, 6, 9, 17, 18, 23, 29, 30, 32
18	June 28	11.7	The ratio test, the root test and strategies	1, 4, 5, 13, 16, 20, 21, 33
19	June 29	11.8	Power series	6, 7, 16, 20, 25, 28, 30, 39
20	July 5	11.9	Representation of functions by power series	11.9: 3, 4, 5, 6, 13, 14, 23, 27, 37
21	July 6		Catch up and review	
22	July 10		EXAM 2	
23	July 11	11.10	Taylor and Maclaurin Series	4, 5, 11, 15, 23, 24, 27, 28, 39, 42, 43, 47, 48, 51, 54
24	July 12	11.11	More Taylor and Maclaurin Series Binomial series	11, 14
25	July 13	11.12	Applications of Taylor Series	13, 14, 17, 20, 25, 26, 27, 28, 29
26	July 17	10.1	Parametric equations	10.1: 7, 10, 13, 15, 19, 24abc, 39
		10.2	Tangent lines, arc length	3, 6, 9, 17, 25, 26, 39, 41, 44, 52, 53, 57, 61
		10.3	Polar coordinates	2, 3, 7, 10, 18, 41, 44, 59, 63
27	July 18	10.4	Areas and lengths in polar coordinates	5, 10, 14, 21, 23, 28, 45
28	July 19		Catch up and review	
29	July 20		FINAL EXAM	