

Syllabus: Math 152, Summer 2008

Information

Instructor: Paul Raff

e-mail: praff@math.rutgers.edu

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

Location: Beck Hall 111, Livingston Campus

Textbook: *Calculus* by Jon Rogawski

Office Hours: Wednesdays, 4:30 - 5:30pm and Fridays, 3:30 - 4:30pm

Office Hours Location: Livingston Learning Center, Tillett Hall

Course Webpage: <http://eden.rutgers.edu/praff/152-sum08/>

Days off: Friday, July 4

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	15%
Workshops	15%
Exam 1	20 %
Exam 2	20 %
Final Exam	30 %

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.

What I Expect From You

- *Communication.* This refers both to communication in-class and outside of class. Class sizes are small in the summer, which promotes dialogue between the students and the teacher. If you have any questions during the lecture, ask them. Similarly, if you have questions outside of class, e-mail me or discuss with your peers. Academics aside, I know that instances occur, and sometimes you are unable to make it to class. In those cases, I expect to be contacted by the end of the day that you missed class. Tell me your reason for missing class, and what you plan to do to learn the material before the next class.
 - **Quiz Make-Up Policy:** If you miss class, you must contact me before the end of the day that class is missed. The quiz must be made up before the next lecture. Extreme cases will be handled via University Policy.
- *Punctuality.* Come to class on time, and stay until class is over.
- *Attentiveness.* This doesn't mean you can't talk! I encourage discussion among students, even during class. All I ask is that you speak in the softest voice possible. Sometimes I may interrupt and ask the students to share with the rest of the class what they are discussing, so we can turn it into a discussion with the whole class.

- **Cell Phone Policy:** Cell phones are disruptive, even in vibrate mode. Make sure your cell phones are in silent mode before class starts. Text-messaging during class is also highly disruptive (besides absolutely rude) and will result in the confiscation of the phone until the end of lecture.

What You Can Expect From Me

- *Accessibility.* I strive to be accessible to my students at all times. The easiest form of communication with me is through e-mail.
 - **Note about e-mail:** It is *extremely* helpful if you write something in the subject line that signifies that you are a student in my class. Preferably, you should write [Math 152] in the beginning of the subject line.

I plan on being at Rutgers from 10am through the end of class the days we have class. During the other weekdays, I will be back home in Philadelphia, but still readily accessible through e-mail. I will be traveling many of the weekends, but I still plan on being accessible, so please don't hesitate to e-mail me if you have a question.

- *Respect.* I know it's not easy to take a math class three times a week, at night, during the summer. I admire your initiative, and I'm here to help you through the end.
- *Progress Information.* Quizzes, exams, and workshops will be graded and returned in a timely manner, so you should always know what your status is in the class. The website will show past quizzes and exams, plus links to other material.

General Outline for a Class on Mondays or Wednesdays

On Mondays and Wednesdays, class will start with a one-problem quiz which is graded out of ten points. The quiz problem will be one of the homework problems that has been assigned at some point beforehand. It does not necessarily have to be a problem from the most recent topic. You will have 15 minutes to complete the quiz. Afterwards, I will quickly go over the quiz. We will then have class for 60 minutes, have a 10-minute break, and then regroup until the end.

General Outline for a Class on Fridays

All exams will be on Friday. The first two exams will be 80 minutes long. The exam will start at the beginning of class, and there will be a 10-minute break afterwards, followed by new material to the end of the class period. The final exam will take up the whole class period.

For the other four Fridays, there will be a group workshop. The workshop will either take up the whole period, or will take up the first half of the period. The workshop will be done in randomly-assigned groups of 3 or 4, and each group will turn in one workshop at the end of the workshop period. Workshops are meant to walk you through neat applications of the material that we are covering, and will either involve an in-depth look in topics already covered or a neat introduction to topics we are about to learn more about.

Day-by-day Schedule

Session #	Date	Section(s)	Topics	Homework Problems
1	May 28	6.1	Areas (review)	
		6.2	Volumes with disks	1, 2, 5, 6, 13, 14
		6.3	Volumes with washers	16, 19, 29, 30, 36, 37
2	May 30	6.4	Volumes with shells	12, 13, 19, 20, 23, 26
			Workshop: Re-inventing geometry	
3	June 2	6.5	Work	3, 6, 11, 12, 16, 17
		7.1	Numerical integration	7, 8, 13, 14, 36, 37
4	June 4	7.2	Integration by parts	9, 10, 23, 24, 53, 72
		7.3	Trigonometric integrals	3, 4, 14, 15, 40, 41
5	June 6	7.4	Trigonometric substitution	13, 14, 23, 28, 35, 36
			Workshop: Mad integration	
6	June 9	7.6	Partial fractions	9, 10, 17, 18, 33, 36
7	June 11	7.7	Improper integrals	14, 19, 29, 32, 43, 44
8	June 13		Exam 1	
		8.1	Arc length, surface area	7, 8, 9, 10, 38, 39
9	June 16	8.4	Taylor polynomials	7, 8, 17, 18, 29, 30
10	June 18	9.1	Solving differential equations	13, 14, 29, 30, 35, 36
		9.2	Models involving $y' = k(y - b)$	3, 4, 8, 9, 15, 16
11	June 20	9.3	Graphical methods	2, 9
			Workshop: Predator-prey	
12	June 23	10.1	Sequences	21, 22, 30, 39, 43, 46
13	June 25	10.2	Summing an infinite series	9, 10, 15, 16, 28, 29
14	June 27	10.3	Convergence of series with positive terms	9, 10, 15, 16, 38, 39
15	June 30	10.4	Absolute and conditional convergence	5, 6, 21, 22, 23, 26
16	July 2	10.5	The ratio test and the root test	6, 11, 12, 13, 18, 23
			Workshop: How to count	
17	July 7	10.6	Power series	6, 7, 19, 20, 31, 32
18	July 9	10.7	Taylor series	3, 4, 11, 12, 19, 20
19	July 11		Exam 2	
		10.7	More Taylor series	21, 22, 24, 25, 26, 41
20	July 14	11.1	Parametric equations	7, 8, 19, 20, 21, 22
		11.2	Arc length and speed	3, 4, 13, 14, 20, 21
21	July 16	11.3	Polar coordinates	3, 4, 7, 8, 14, 15
		11.4	Area and length in polar coordinates	7, 8, 11, 12, 13, 14
22	July 18	11.9	Final Exam	