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**INTRODUCTION TO REAL ANALYSIS I**

**FALL '08**

**[MATH 01.330-1]**

**ROB 324**

**SEPT 3 – DEC 19**

**T,R 12:15 - 1:30**

SEPT 2 T INTRO LECTURE

R 1.1

9 T 1.1

R APPENDIX A

16 T APPENDIX A

SUMMARY 1

R 1.2

23 T 1.3

R APPENDIX B

30 T **ROSH HASHONAH – NO CLASS**

OCT 2 R 2.1

7 T REVIEW

SUMMARY 2

R **YOM KIPPUR – NO CLASS**

14 T **TEST 1 (SECTIONS 1.1 – 2.1, APPENDICES A & B)**

R RETURN TEST

21 T 2.2

R 2.3

28 T 2.3, 2.4

R 2.4

SUMMARY 3

NOV 4 T **ELECTION DAY - NO SCHOOL**

R 2.5

11 T REVIEW

R **TEST 2 (SECTIONS 2.2 – 2.5)**

18 T RETURN TEST, 3.1

SUMMARY 4

R 3.1, 3.2

25 T 3.2

R **THANKSGIVING - NO SCHOOL**

DEC 2 T 3.3

R 3.4

9 T 3.5

SUMMARY 5

R REVIEW

**MONDAY DEC 15 – FRIDAY DEC 19: FINAL EXAM WEEK**

**(FINAL EXAM ON ALL CHAPTERS)**

**FINAL EXAM: T, DEC 16, 2:45 - 4:45 PM, ROB 324**

1. AFTER MATERIAL IS COMPLETED IN CLASS, THE HOMEWORK FOR THAT MATERIAL IS DUE THE VERY NEXT CLASS DAY.
2. STUDENTS ARE RESPONSIBLE FOR KNOWING ALL RULES AND REGULATIONS. IT IS THEIR DUTY TO FIND THEM OUT EVEN IF CLASS EXPLANATIONS ARE MISSED.
3. ATTENDENCE IS REQUIRED. THERE IS NO MAKE-UP FOR MISSED WORK UNLESS ABSENSE IS EXCUSED.
4. STUDENTS ARE ENCOURAGED TO WORK TOGETHER ON HOMEWORKS AND GENERAL STUDYING. TESTS ARE THE EXCEPTION - THESE ARE PURELY INDIVIDUAL ACTIVITIES AND JOINT WORK IS NOT ACCEPTABLE.
5. THIS COURSE IS NOT AVAILABLE ON A PASS/NO CREDIT OPTION.

<b>HOMEWORK ASSIGNMENTS</b>				
<b>ASSIGN #</b>	<b>SECTION</b>	<b>PAGE</b>	<b>PROBLEMS</b>	<b>TOTALS</b>
=====	=====	=====	=====	=====
1	1.1	11	1,3,7,12,13,18,19	7
2	1.2	15	1,2,6,11,13,14,20	7
3	1.3	21	1,2,5,7,9,10	6
4	2.1	29	1(a,b),2(a,b),3(a,b),6,13,16(a,b),20,23	8
5	2.2	34	1,4,5,6(a,b),8(a,b),9,12(a,b),15	8
6	2.3	38	1,2,5,6,8,9,11,12	8
7	2.4	43	1,2,4(b),6,7,9,12,13	8
8	2.5	50	3,4,5,6,7,8,10	7
9	3.1	59	1,2(a,c),3(b,d),5(b,d),6(a,c),8,10,13	8
10	3.2	67	1,3,5,7,9,10,11,12,13	9
11	3.3	74	1,2,4,5,7	5
12	3.4	80	1,2,3,5,6,9,12	7
13	3.5	86	1,2,3,5,7,9,10	7
14	3.6	88	1,2,3,5,8,9	6
15	3.7	95	1,2,3(a,b),4,7,9,12,13	8
GRAND TOTAL				109

Each problem counts as 1 point. There is NO CREDIT for parts of problems. You either get full credit (1 point) for each problem or no credit.

## GROUP RESPONSIBILITIES

1. Set up 5 person groups:
  - a. Each group gets two 3x5 cards and put all names of group members and phone numbers on them.
  - b. Elect group leader and indicate who on the 3x5 cards.
  - c. Select portfolio keeper, who should be the group leader but doesn't have to be. Indicate this on the 3x5 cards.
  - d. The portfolio keeper is responsible for collecting all info for portfolio and getting copies to group members.
  - e. The group leader is the group liaison with the prof.
  - f. One of the 3x5 cards goes to the prof and the other is put in the portfolio.
  
2. Meet and work on homework together and see to it that each member has worked out solutions to all problems. Each group must keep a portfolio for this purpose! There will be one copy of each correctly worked problem in this portfolio. Homework may be shared between groups. Providing assistance to group members is expected. Share phone numbers and offer help BEFORE class. The professor is also available if help is needed. It is the responsibility of the group leader to see the professor at least once per week during the semester and INDICATE HOW THINGS ARE GOING. You can only get credit for seeing the professor once per week.
  
3. Groups will discuss difficulties and problems with this course regularly. One member will act as secretary during these discussions and take notes. At least two copies of these notes are needed. One for the portfolio and one for the professor. These notes should be dated and contain the name of the secretary. The group leader has the responsibility of bringing a copy of the notes and speaking to the professor about these problems at the regular meetings with the professor (at least once per week). Other members of the group may attend with the group leader.

## SUPPLEMENTAL ACTIVITIES

Below are listed several ways to get supplemental points. You must do 60 points worth of these activities. You get to choose which of these activities to do. Please note that these activities have due dates. You cannot get credit for any activity past the due date. You may, of course, turn things in early!

### 1. Mathematical autobiography (5 points) DUE SEPT 18

Write an at most two page essay investigating your personal relationship with mathematics and statistics. What experiences formed your attitude toward math?

### 3. Computer Math (5 points/program - limit 3 DIFFERENT PROGRAMS)

Check with professor for due dates. No more than one program/tutorial can be turned in per week. ONE ASSIGNMENT PER PROGRAM. Students learn how to use a mathematics software package. Solve some of your homework exercises using the program and print out the problem and results from the computer. Alternatively, if the software has a tutorial, work it out and print it up. There are many possible software packages. For example, MathCad, Macsyma, Maple, MathLab, Theorist, MacMath, and Derive. If you have a different program that you would like to learn, just ask the professor. Mathematica is not acceptable.

### 4. Attend Departmental Colloquia (5 points - limit 6)

### 5. Additional Math Problems (2 - 30 points)

From time to time the professor will present opportunities to work on additional, more challenging math problems. Each problem solved is worth 2 points. The problems must be written up neatly, one problem per page, with plenty of explanation. These problems may be done either by individuals or as a group activity (but are turned in individually). They are due within THREE weeks after they are announced in class.

*In this course, the supplemental problems are any of the exercises from the text that are not assigned as homework or done in class, and are due within 3 weeks after that section's homework is completed in class.*

### 6. Five Page Report (up to 15 points)

This is an essay type report on a math topic, related to this course, of your choosing. You must get approval of your topic from the professor first. The professor will also work out with you a due date. Note that you must have a bibliography WITH AT LEAST 3 SOURCES, and reference THEM in your paper. You may not use the web as a source.

### 7. Email Account (5 points) DUE BY OCT 2

The students must find out how to get an Email account, how to use it and they must successfully send the professor a message.

### 8. PRACTICE Exams (5 points/exam - limit 3 exams)

See the professor to get copies of these practice exams. They are due at the review class for each test.

## **ATTENDANCE POLICY**

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Please review the College's attendance policy in the student handbook, p. 65-66. The following class attendance policy is presented in accordance with paragraph 4, p. 66 "additional attendance criteria."

Mathematics learning depends on constant reinforcement, so missed classes are missed opportunities to practice what you have learned and are learning. A maximum of three (3) absences throughout the semester will be tolerated – **EVEN THOUGH POINTS WILL BE LOST.**

Students are responsible for all missed work. You may contact a classmate or the professor (**E-Mail address: Itzkowitz@Rowan.edu**) for the assignments.

The first three absences, will cost a loss of 4 points each. Every other absence will cost a loss of 10 points each. These lost points may be made up by doing additional Supplemental Activities (see Supplemental Activities sheet).

## **LATENESS POLICY**

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The rationale given above for absences also serves as rationale for not coming late to class. Students are permitted three (3) latenesses per semester. That is, students will be allowed to get credit for homework due the day of the lateness only for the first three latenesses. After the first three latenesses, there will be no make-up for missed homework credit.

In addition, each of the first three latenesses will cost the loss of 2 points each. Each additional lateness will cost the loss of 5 points. These lost points may be made up by doing additional Supplemental Activities.

**REAL ANALYSIS  
READING ASSIGNMENTS  
FROM  
DUNHAM, "JOURNEY THRU GENIUS"**

	<b>Pages</b> =====		<b>Dates</b> =====
CHAPTER 1:	1 - 26	SUMMARY 1	T, 9/16
CHAPTERS 3 & 4:	61 - 112	SUMMARY 2	T, 10/7
CHAPTER 7:	155 - 183	SUMMARY 3	R, 10/30
CHAPTERS 8 & 9:	184 - 222	SUMMARY 4	T, 11/18
CHAPTERS 11 & 12:	245 - 286	SUMMARY 5	T, 12/9

Simply turn in a two page paper summarizing the reading assignment ABOVE.

**SOME STUDY HINTS**

**TO CREATE THE REALITY YOU WANT, USE:**

1. THOUGHTS (DESIRES, WANTS, BELIEFS)
2. WORDS (SPOKEN OR WRITTEN)
3. ACTIONS

**#3 ABOVE IS MORE POWERFUL THAN #2 WHICH IN TURN IS MORE POWERFUL THAN #1.**

**ALSO NOTE THAT EMOTIONS, AND STRONG FEELINGS ACCELERATES THE MANIFESTATION OF YOUR CREATIVITY.**

**TO SOLVE PROBLEMS:**

1. Preparation (state what needs to be solved, work on it)
2. Incubation (Allow time for solution to manifest)
3. Illumination (calmness or peacefulness is necessary for the solution to become conscious)
4. Verification (necessary in science and math to convince others - this is the writing of the solution to check for errors)

**What this tells us about studying (in particular, math):**

1. How well we learn a subject is proportional to the amount of time spent thinking about it.
2. Math, science, and engineering take about twice as long as other subjects to learn.
3. Suggested study procedure:
  - A. Daily
    1. Read material before class - prepare questions.
    2. Take notes in class, also ask questions.
    3. After class, reread material and do the homework.
    4. We go over HW in class - ask questions about any difficulties.
  - B. Before tests
    1. Go over material and all worked examples at least three to five times.
    2. Do extra examples on your own.
    3. Do the review (you can hand this in for extra credit.)
    4. Relax before tests. That is, during the evening before the test.
    5. On the test, remain calm (use deep breathing and/or tighten your toes)