SYLLABUS FOR MATH 4210: ANALYSIS 1

1. Key Information

Autumn 2008
Time: MWF 11:00-11:50
Room: B4 508
Instructor: Mike Wills
Email: mwills@weber.edu
Office: B4 522
Office Phone: (801) 626-7158
Office Hours: MTWF 12:00-13:00
Text: *Rudin* Principles of Mathematical Analysis, 3rd Edition [available in Campus bookstore]. The ISBN is 007054235X.
Course Web page:
http://faculty.weber.edu/mwills/teaching/Weber/2008/Autumn/Math4210/math4210homepage.htm
Welcome to Math 4210. I look forward to teaching you, and wish you all the best for the coming semester.

2. Prerequisites

Math 2210 and Math 2270 with 'C' or better

3. Homework

Homework is the most important part of this course.
There is a homework assignment for each week. You have until 17:00 on the day that it is due to hand in the homework. After that, it will be considered late. You can hand in homework late subject to a penalty of 2 points. The late deadline will be the following class day at 17:00. Homework assignments will be available on the course web page at
http://faculty.weber.edu/mwills/teaching/Weber/2008/Autumn/Math4210/math4210homework.htm
Each problem is out of five points and all problems will be graded. Each problem is given equal weight for the course as a whole. Since different assignments will often have a different number of problems, not all homework assignments are equal.

4. Exams

There will be three exams in this course. Here are the dates:
Midterm 1 Friday 3 October (Due: Monday 20 October)
Midterm 2 Friday 14 November (Due: Monday 1 December)
Final: Monday 8 December 0930-1130
The midterms will be open book and take home. You will have a little over two weeks to do them.
The final is cumulative, closed book, and calculators are prohibited. It will be held in our classroom.

5. Grade Allocation

Your work will be broken down as follows:
Midterms: 15% each.
Homework: 40%.
Final: 30%.
The grade allocations will be as follows:

Grade	Score
A	90-
B	75-89
C	65-74
C-	60-64
D	45-59
E	-44

This is the preset scale. If a large number of the class does worse than expected, I will curve downwards as the case demands. Thus, if some one gets 95% for the class, that will always result in an A. However, it is possible that some one with, say 87%, may also get an A in the event that I decide to curve.

6. The Material That we will Cover

We will start with the handout on set theory, then move on to chapter 1, and go as far in the text as we can. For this semester, getting to chapter 5 (or even chapter 6) seems like a reasonable goal. Most of the rest of the book will be discussed in math 4220 in spring 2009.

7. Help and Office Hours

For now, I keep open office hours. This means that if I am in my office, I will make time for you if I can. Please bear in mind that I do have other responsibilities besides this class, so this policy may change. To guarantee that I will be in my office at a specific time outside of official office hours, you may want to make an appointment, preferably via email.

8. Further Reading

See the set theory handout for further reading about set theory. For analysis per se, here are some other books of interest.

8.1. **Undergraduate real analysis.** *Wade, William* "Introduction to Real Analysis", 3rd Edition, 0131453335

I used the second edition of this book when I took undergraduate real analysis at CSUN. It's less terse than Rudin. I found the presentation, or at least the typeface, inelegant.

Bartle, Robert and Sherbert, Donald "Introduction to Real Analysis", 3rd Edition 0471321486

This seems to be a popular book. I'm not too familiar with it.

Gordon, Russell "Real Analysis: A First Course", 2nd edition 0201437279

This book has been used here several times. Russ is a former colleague of mine. The book is only useful for the first semester of our course.

8.2. **Undergraduate complex analysis.** *Brown, James and Churchill, Ruel* "Complex Variables and Applications" (8th edition)

This is a more elementary text than ours. I used the 7th edition in math 3810. I'm a little bit irritated, since the 7th edition was out for only five years. The book has been in print for decades. You'd think Brown would have got it right by now. (Churchill passed away some years ago.) This is also the only book on undergraduate complex variables that I am familiar with.

8.3. **Topology.** *Sutherland, William* "Introduction to Metric and Topological Spaces" 0198531613

This text is about the same level as ours. The subject matter in this text is developed primarily as a tool in ours. I've used this book a lot- in at least two classes, as well as for qualifying exams and references.

Munkres, James "Topology" 0131816292

This text is more thorough than Sutherland's and discusses algebraic topology as well. It is also still in print, and was used in the most recent topology class at WSU.

8.4. **Graduate Analysis.** [For those who find our current text too elementary]

Rudin, Walter "Real and Complex Analysis" 0071002766

The natural follow up to our book.

Ahlfors, Lars "Complex Analysis" 0070850089

I used this text in graduate complex variables at CSUN. I like it a lot, but it is quite difficult.

Royden, H.L. "Real Analysis" 0024041513

I used this text in graduate real analysis at CSUN. It's pretty good.

9. Additional Notes

1) Please see me about any problems that come up, mathematical or otherwise.

2) Try to do as many problems from the text as you can.

3) This is a demanding class. You should expect to study for at least 2 hours outside of class for every hour in class. Plan accordingly. You are strongly encouraged to do homework every day. The assignments are quite long, so you should start on them before the due date is assigned.

4) We will not have class on Monday 1 Sep (Labor Day), Friday 17 Oct (Fall Break), and Friday 28 November (Thanksgiving Weekend).

5) Special needs: Any student requiring accommodations or services due to a disability must contact Services for Students with Disabilities (SSD) in room 181 of the Student Services Center. The phone number is (801) 626-6413. SSD can also arrange to provide course materials (including this syllabus) in alternate formats if necessary.