Mathematics 131

Mathematical Analysis I

Time and Place: T & R 9:35 – 10:50 am, DAVD (Adams Hall). Spring 2013
Instructor: Asuman Guven Aksoy
Office: Adams 215, Campus x72769 Off-Campus: dial 607-2769
Email: aaksoy@mckenna.edu;
http://www.asumanaksoy.com
Office Hours: T & R 2:00 – 3:30 pm and by appointment.
A Problem Book in Real Analysis- A.G. Aksoy and M.A. Khamsi
Prerequisites: Math 60 Linear Algebra

References:
The number of books on advanced calculus and introductory analysis is overwhelming. Despite the large number of recent texts, some of the older books remain the best. Some favorites are:

Simmons, G. f., Introduction to Topology and Modern Analysis, McGraw Hill, New York, 1963

II. Some recent texts are:
Abott, S., Understanding Analysis, Springer UTM, NY, 2001
Pugh, C. Real Mathematical Analysis, UTM, NY, 2002
Exams:

- 2 Midterms Exams on February 26th and April 16th.
- 3-5 Quizzes, dates will be announced in class.
- Homework, Weekly, generally due on Thursdays

Comprehensive Final Exam, Thursday May 16th at 9:00 am

There will be NO make-ups for any exams unless there is a very good reason.

Grading Scheme:

Final grade is computed as follows:
Homework: 20 %, Midterm I: 20 %, Midterm II: 20 %, Quizzes: 10%, Final Exam: 30%.

Class Participation and Homework:

One of the goals of this course is that you learn the art of mathematical proofs. I expect frequent suggestions and questions during lectures. Homework will be assigned regularly and you may work with each other (unless otherwise is instructed) but you must write up your own answers.

Topics:

1. Sets and functions
2. Countable sets and cardinality
3. Sequences, subsequences, liminf, limsup
4. Cauchy sequences, completeness
5. Metric and norms, metric spaces
6. The topology of the metric spaces
7. Compactness and connectedness
8. Continuity, uniform continuity
9. Sequences and series of functions, uniform convergence
10. Sets of measure zero, integration
11. Some fixed point theorems

Comments:

This is a course in which the material you saw in Calculus is put on a solid mathematical basis. For some of you it will be the first course in which you are expected not to calculate answers, but to give proofs. The transition, though intellectually exciting, is difficult for many students. Students who think they will have particular difficulty with proofs are advised to work harder and meet with the professor and tutors during as early in the semester as possible.
**Tutoring:**

Tutoring will be held in the Math Commons Room on Sunday through Thursdays from 8:00-10:00 pm. Tutors assigned for this course are:

Jenny Thompson (CGU), e-mail: Jennifer.thompson@cgu.edu
Monday and Wednesday from 6:30-8:00 pm.

Locke Brown (CMC), e-mail: wbrown14@cmc.edu
Sunday and Tuesday from 8:00-10:00 pm

Math Commons Room is located at 209 Adams Hall-down the hall from Poppa lab.