MATH 225 Foundations of Higher Mathematics

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Foundations of Higher Mathematics
MATH 225

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Course Home Page: http://www.cs.xu.edu/math225/13s

Schedule: Lectures are Mondays, Wednesdays and Fridays from 10:30-11:20 in Smith 346.

Suri and Bal, A Certain Ambiguity, Princeton University Press.

Prerequisites: Fingers; lots of them. You'll need them.

Course Objectives: For most of you, the mathematical training you have received so far has emphasized processes of calculation - the computation of answers to problems - usually based on examples from the professor.; In this course we will concentrate on learning to formulate the proofs of theorems, using logical understanding. This will allow you to begin to bridge the gap between the computational and the theoretical aspects of mathematics and computer science, and start towards a deeper understanding of general theory. Discrete structures will provide a beautiful and meaningful environment for testing one's logical reasoning and form the content of the course.

Required Work: In addition to regular attendance of the lectures and staying current with the assigned reading there will be 15 or so homework assignments. One special assignment, towards the end of the semester, will be a paper on the auxiliary reading, "A Certain Ambiguity."

Exams: There will be 3 non-cumulative midterm exams in addition to the cumulative final exam. The dates for these three exams are tentatively scheduled for sometime in the first week of February, March and April. The final exam is scheduled for Wednesday May 1, 10:30-12:20 p.m. Use this date to make your travel plans accordingly.

Attendance and Classroom Participation: While there is no formal attendance policy, you are expected to arrive prepared to ALL course sessions. Furthermore you are expected to participate in the classroom discussions and activities to the best of your abilities. Given the difficult nature of the material and the interactive lecturing approach that will be used, it is difficult to envision a student missing and/or arriving unprepared to a number of the class sessions and still succeed in the course.

Assessment: Grades on all assigned work and exams will be based on correctness, clarity and style; presentation counts. Your grade for the course will depend approximately 35% on the homework assignments. Each midterm examination will contribute 15%, and the cumulative final will contribute the remaining 20%.

The no BS rule will apply to all the course examinations.

The Department of Computer Science and Mathematics has adopted the following grading standards:

A: Exceptional. The student's attainments are out of the normal course, unusual and special.
B: Good. The student's performance is done rightfully or skillfully and is commendable.
C: Satisfactory. The student's accomplishments are sufficient for the needs of the course.
D: Minimal passing.
F: Failure.  
Plus/minus modifiers on grades will be used solely at the instructor's discretion. In cases where the instructor believes the plus/minus modifiers help give a more honest and accurate assessment, they will be used.
A more detailed explanation can be found at:  
Also see http://www.cs.xu.edu/~mikeyg/CourseEngagementStandards.html for a description of the "Course Engagement Standards."

Exceptions to the Rules: Almost all rules are designed to be broken under the correct set of extraordinary circumstances. It is strongly recommended that you communicate to the instructor at the earliest possible time any circumstances you feel warrant an exception (e.g. illness, religious holiday, personal and/or family crisis, etc.). Remember that going into hiding is probably the worst strategy you can adopt! There is a direct relationship between the amount of sympathy you can anticipate from an instructor and the amount of time remaining until a given assignment's due-date. Finally, remember that if you are uncomfortable discussing something directly with an instructor (e.g. personal problems) you can always contact someone in the Dean of Students Office and have that individual contact the instructor.

Honor Code: Homework can be challenging - it's where you find out what confuses you. You are strongly encouraged to discuss the homework with your classmates or with the instructor (and where appropriate, the math tutoring lab). In the end though, all work submitted must be your own. You must work out, write up, create, or program your own solutions. Work you hand in must be conceived, created, and fully understood by you.
The best way to ensure this is to craft your solutions/answers/programs when you are by yourself rather than during your discussions with others. This will insure that your work is based on your own understanding rather than on that of your classmates. To do otherwise is a violation of the college's policy on academic honesty and will be handled accordingly. Please refer to the rules described in the Student Handbook.
I encourage you to follow these two guidelines, stated on many course websites, but perhaps originating most recently at Duke University.

• The Gilligan's Island Rule: Essentially, the idea is that when you meet to discuss problems, it is fine to have a communal board or paper to work out your ideas, but this record should be destroyed at the end of the session. Then, everyone should spend at least thirty minutes doing a relatively mindless task (like watching reruns of a brainless show - e.g. Gilligan's Island). This rule helps everyone be sure that the work they create truly represents their understanding of the material.
• List of Collaborators: If you discussed the problems with others, include their names in your writeup, either at the beginning or end of the problem, or in a section specifically designated as the list of collaborators. (If you have the same collaborators on all problems, a single listing is fine. If it varies by problem, list on a problem-by-problem basis.)

Remember, un-noted collaboration or any form of cheating will be dealt with harshly to protect the integrity of everyone involved.
Always remember:

Don't Panic