

Governor's School for the Sciences – Summer 2005

Math 300 – Introduction to Abstract Mathematics

MTWRF 1:30-4:30 in Ayres 214

Professor: Dr. Chuck Collins

To contact me:

In Person: in my office: Ayres 312B. I'll usually be in my office the hour before class.

By Phone: 974-4269 (my office), 974-2461 (math office, leave message)

By Note: mail box (Ayres 120), under office door (Ayres 312B)

By email collins@utk.edu or ccollins@math.utk.edu

By FAX: 974-6576

Assistant: Kate Frederick

Email: kfreder1@utk.edu

Course Goals: (1) Learning to read, write, create and understand mathematical proofs. (2) Learn some interesting mathematics: logic, set theory, relations, functions, induction and graph theory. (3) Learn about the different parts and the nature of mathematics. (4) Have some fun.

Course Resources:

Textbooks: We'll use 2 textbooks:

How to Prove it: A Structured Approach, by Daniel J. Velleman, Cambridge Univ. Press, 1994.

Introduction to Graph Theory, by Richard J. Trudeau, Dover Publications, 1993.

Daily Handouts: Each day you'll get a copy of the *Math Mole*, a newsletter with some (hopefully) interesting content and an outline for the day. There will usually be other handouts each day.

Web Resources: I try to keep an up-to-date webpage <http://www.math.utk.edu/~ccollins/GS2005> containing a class schedule, copies of handouts and other resources associated with the class.

Class Work:

Exercises: (40%) Assigned daily. These problems will be done in class or as homework, due the next class period. Some will be written up to turn in, some you'll do on the board and some you'll evaluate as a group. For the proofs I'll handout a specific rubric later that will emphasize the careful presentation of your argument. There will be extra-credit exercises to do and for some you'll have to chance to make corrections in a graded exercise.

Portfolio: (10%) Select exercises (about 20) will be put in a notebook as a collection of your work. They will be reviewed at various times during the term, and given a final evaluation at the end.

Exams: (40%) Every Tuesday (except the 1st) we'll have a 1-hour quiz based on the previous week's work.

Class Participation: (10%) Just about every class will have some activity to participate in, plus you should always be part of whatever discussion or work is going on. Also, there will be some assignments like providing material for the *Math Mole* newsletter and rewards for participating or winning class contests.

Grades: The grading scale is 90% for an A, 85% for a B+, 80% for a B, etc. Earning at least the minimum percentage will guarantee you the given grade. I may choose to lower the cutoffs, but don't depend on it. This is summer and an elective course, and I don't want the grades to be a punishment for you (or for me),

so I will give you plenty of chances to maximize your grade through selective re-dos and extra credit. It will be up to you to take advantage of these opportunities.

Class Policies and Expectations

Classroom Behavior: Besides the rules of GSS and the common rules of good behavior, I expect you to come to class prepared, to do your best work, to encourage others to do their best work, and to fully participate in the class.

Out-of-Class Expectations: You should schedule regular times daily to work on this material. You should keep up with the daily work, and take time to review and really learn the material. You should seek help if you need it and give help if asked.

In Case of Trouble: This course should be challenging and that means at some time(s) you will be confused. If you are confused in class, ask me or Kate to clarify. If you are still confused after asking, ask again. If you are confused outside of class, you can read the book, especially if there are worked examples or written out explanations, you can look over your class notes and exercises, and you can talk to other students. Make sure you write down the clarification. Do not let things go as in the end you are responsible for learning as much of the material as possible.

Group Work/Cheating: I expect the final version of your work to be your own. I also encourage you to talk with other students in the class. You may ask other students questions about topics from class, and you can discuss the problems in general. However, once you start writing out a solution you must do it without any help (i.e. no copying). If I suspect any offense, you'll get a warning the first time. If it continues, both parties will get 0s on the suspected work. More serious offenses will be dealt with on a case by case basis in consultation with Dr. Kovac.

Late Work/Makeups: Late work will not be accepted (it can count as a re-do if the assignment allows). This is to encourage you to schedule your time well and keep up with the material. If you are sick or otherwise displaced, makeup work will be arranged.