

Math 105 — Contemporary Mathematics
BR 264
MWF 1:00-1:50pm
3 credits
Textbook: *Excursions in Modern Mathematics*,
8th edition, by Peter Tannenbaum, 2014

Instructor: Professor Ellen Fagerstrom-Hill
Mathematics
Office: Maclean 375 B
email: fagerstrom@mnstate.edu
Office Hours: Mon/Tues/Thurs 10:00-11:30am
Mon/Wed/Thurs/Fri 3:00-4:30pm

This syllabus and all supporting documents are available on my webpage: web.mnstate.edu/Fagerstrom

Course Description: Topics selected from various areas of mathematics, showing the scope and power of mathematics and emphasizing mathematical methods. Topics include circuits, networks, trees, voting analysis, sequences, and recursion. Not intended to prepare students for any subsequent course. Must have successfully completed Elementary Algebra or the listed prerequisites, or acceptable placement score.

MSUM's standard is that one semester credit hour for undergraduates is meant to represent three hours of academic work per week during a regular length semester for the average student who has the expected preparation for the courses that he or she is enrolled in. For this class, this means that you are expected to put in 9 hours a week, only 2 hours and 30 minutes of which are in class. The remaining 6 hours and 30 minutes are expected to be outside of class time. Spending time reading the book, doing homework and projects, and studying for exams is meant to be a significant part of this course. (This is why twelve credits is considered full time - it's equivalent to 36 hours per week. Note that you have to average 15 credit hours a semester to graduate in four years - the equivalent of 45 hours a week.)

Course Objectives and Student Learning Outcomes: The student will

- describe historical or contemporary applications of mathematics/logical systems.
- describe mathematical ideas and results in writing.
- apply a variety of problem-solving skills in various applications.
- demonstrate inductive and deductive reasoning skills.
- illustrate historical and contemporary applications of mathematical/logical systems.
- clearly express mathematical/logical ideas in writing.
- apply higher-order problem-solving and/or modeling strategies.

Attendance: Attendance is mandatory in the sense that you will not be given an opportunity to make up work from class that you miss, and it is up to you to learn the material on your own. I will not give you the lecture on a one-on-one basis in my office. Regardless of why you miss, missing class will likely mean that you won't understand the material as well as you should and your grades will likely suffer as well. Unfortunately this statement is true whether you miss class because you just didn't want to get up that morning or if you miss class because you had a major emergency (in fact, the better the reason for missing class is, the more students tend to not understand the material no matter how much they try to make it up, since they are distracted by other concerns in their lives). Missing class is strongly discouraged. It will not be directly penalized, however, except for exam days, and I do not take a formal attendance each day. Note that any work due will not be excused if you are not in class.

For a known absence due to military duty, jury duty, or other legal requirement, you must give me notice as soon as feasible and prior to the absence if it will require missing an exam. If you don't miss an exam, I don't need to know why you were gone unless you wish to tell me. Also, documentation

SHOW ALL WORK. USE CORRECT NOTATION. GIVE EXACT ANSWERS UNLESS OTHERWISE NOTED.

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will be required for a makeup exam to be graded. For an absence due to an official university activity, you must give me written notice at least two weeks prior to the absence, as per university policy (see <http://web.mnstate.edu/sthandbook/policiesprocedures/studentabsence.cfm>), for a makeup exam. I feel it is necessary to point out that relatively few faculty members or coaches remember to provide this notice in that time frame, but it is up to you to remind them, since insufficient notice will be your problem, not theirs. For an absence due to personal reasons such as illness or family emergencies, you should notify me as soon as feasible, before the absence in most cases. In order for a makeup exam to be graded, written documentation of the reason for the absence will be required. Examples are: a note from the doctor saying you were seen (it does not have to say what you were seen for), a copy of the police report for a minor car accident, funeral program or obituary, etc.. In the case of a funeral, if your relationship is not clear, I may ask you to write a sentence explaining the relationship and sign it.

Absences due to family vacations, reunions, weddings, etc., are not excused absences unless you inform me of them by Wednesday, September 4. Otherwise, I expect you to schedule such events around your class schedules if they come up during the semester, especially since the exam dates are already set.

If you know in advance that you will be gone, I expect you to turn in any assignments due while you are gone *before* you leave. Homework submitted after you return will not be graded for credit.

Academic Honesty: You are expected to do your own work. You may certainly work with others and get help on homework and projects, but the work you submit should be your own work. Note that during exams you will not be allowed to get help from others. Make sure that you learn the material while you do the homework - that is the purpose of the assignments. Then during the exam you can demonstrate your knowledge - that is the purpose of the exams. Cheating and plagiarism will not be tolerated in any college course (or any course at any level). See the MSUM Academic Honesty policy (<http://web.mnstate.edu/sthandbook/policiesprocedures/academichonesty.cfm>) for more information and possible consequences of cheating.

Special Accommodations: Students with disabilities who believe they may need an accommodation in this class are encouraged to contact Greg Toutges, Coordinator of Disability Services at 477-2131 (voice) or 1-800-627-3529 (MRS/TTY), CMU 114 as soon as possible to ensure that accommodations are implemented in a timely fashion.

Course Requirements: You are expected to complete daily homework, complete and submit all graded work, and take and pass all the exams on the scheduled dates.

Evaluation Standards: Your course grade will include homework, project, and exam grades. For more details, see the separate sheet with the grading tables and test dates.

Course Outline: See the separate sheet with the tentative daily schedule.

Calculators: You will be expected to have a scientific calculator available during some exams. A graphing calculator is not required, but may be used. Any non-numerical calculations should be done without the use of a calculator, and credit will not be given without appropriate work shown. The scientific calculator should have an exponentiation key (usually either x^y or \wedge) and be able to do permutations and combinations (usually either nPr and nCr or P(n,r) and C(n,r), often in a menu under Prob rather than a direct key).

General Comments: For all graded work in this class, you must show work for credit and give exact answers unless otherwise specified. In general, if you have to write it down, you have to show it to me.

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My rule of thumb when grading is either whether I could do a similar calculation in my head and not make a mistake or if the point of the problem is being met (in other words, if the point of the problem is to show a known result, you have to show it in some detail). If I feel that you needed to show more work, I will indicate it.

I do not curve courses of this level. I grade you as individuals, and by whether or not you personally have mastered the material. I also very rarely give extra credit, and when I do it is to the entire class. If you come to my office at the end of the term and ask if you can do extra credit to improve your grade, my answer will be no. The grading scale and weights for the labs and exams are given on the separate page with the grading tables and exam dates.

I will in general return exams on the next class day. If you are not there when I return work, I will not give it to friends, roommates, or spouses, nor will I give out grade information on the phone or via a non-mnstate email address. (These restrictions are not arbitrary - they are based on federal law regarding student privacy.) I will bring the old assignments with me every day, so if you ask at the end of class you can get them then.

I expect you to be responsible for yourself as far as getting notes from a classmate if you miss class. I also expect you to turn in any work early if you know that you will miss class. *This includes those instances when the absence is due to an official university activity.*

Cell Phones: Turn off your cell phones when you go to class (this class or any other class). Cellular phones and other distracting devices generally have no place in a formal or semi-formal setting, such as a classroom. Having your phone on, even in vibrate mode, or texting during class is disrespectful to both your instructor and your classmates. If your cell phone rings, beeps, or has an audible vibrate during an exam I will reserve the right to require that you turn in what you have at that point, without finishing the exam, or to reduce your exam grade by 25%. The point is that such an interruption can hurt your classmates' exam grades. In mathematics in particular, regaining a train of thought that was interrupted by a classmate's phone can be very difficult for some students, and their exam grades correspondingly suffer. I strongly suggest that you always remember to turn off your phone. This policy applies to any other distracting device, such as a pager or alarm clock, as well.

Similarly, I expect you to respect the learning environment by being in class on time and ready, to do mathematics the entire period, and to remain in class until the end of the class. On those rare occasions where you must be late, show respect by taking off your coat and getting out your notebook in the hallway before entering the room, and sitting down in the first available seat by the door - even if it is not where you prefer to sit. That way you minimize the interruption to the classroom. In general, behavior that seriously disrupts the class may be dealt with by involving the MSUM Care Team or Campus Security, if applicable.

In addition, during exams, your cell phone (or any other electronic device) may not be visible at all - you must put it in your closed bookbag or something similar. If you use it for your watch, you will have to bring a different clock to exams or use the classroom clock.

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