

The Nature of Mathematics

MATH 103–06

Location. MWF 2:30 – 3:20, 327 Roop Hall

Text. None. There is a no-nonsense document containing all the material on the course web page.

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Office Hours. MWF 10:10 am – 11:00 am, and by appointment.

Course Web Page. www.math.jmu.edu/~vanwyk/courses/103/ contains announcements, concepts, sections covered to date, homework problems and solutions, etc.

Material. We will cover assorted topics from logic and set theory, number theory, probability, geometry, group theory, and graph theory. A detailed list of topics, as well as a pdf file containing all relevant definitions and theorems, can be found on the course web page. This course is a survey of assorted mathematics topics, and it is *not* like any mathematics course you had in high school.

Goals and Objectives. Through the study of the topics above, students will develop a basic understanding of both the logical structure and the style of mathematics by

- Developing their logical deduction skills.
- Developing an ability to recognize patterns.
- Developing an ability to extract essential properties from a large class of concrete examples, learning to think abstractly.
- Developing creative problem-solving techniques.
- Writing clear, logical solutions to problems.

Expectations. I expect you to be able to think, to read, and to write; I also expect you to work. This course is designed for non-mathematicians, so I do not expect you to already know much mathematics, except for some very basic geometry. My expectations are very reasonable for this class, but if they are not met – in particular, if you don’t review the material before class or work on the homework problems – you will be treated accordingly.

Homework. There are homework problems (that I wrote) on the web pages for each section; I expect you to do them all. The purpose of the homework is to give you problems on which you can test your understanding of the material. **WITHOUT AT DOUBT, DOING ALL THE HOMEWORK PROBLEMS IS THE MOST IMPORTANT THING YOU CAN DO TO MAXIMIZE YOUR GRADE.**

Exams and Quizzes. There will be a 10-minute **quiz** at the *beginning* of class on almost every Monday, starting September 8. Each quiz is worth 10 points. DO NOT MISS A QUIZ. (See “make-up policy” below.)

There will be a **mid-term exam** on Friday, October 17. The mid-term will be worth 100 points. DO NOT MISS THE MID-TERM. (See “make-up policy” below.)

The **final exam** is CUMULATIVE and will be graded out of 150 points. The final exam will be Wednesday, December 10, 1:00 pm - 3:00 pm in the usual room. DO NOT MISS THE FINAL EXAM. (See “make-up policy” below.)

Cards and Attendance. I keep a stack of index cards with your names on them, and use these to ask questions during class. Aside from keeping the class more interesting for you, using these cards allows me to better evaluate your understanding of the material; this could influence your grade by a third of a letter (for example, C+ ↔ B-).

I also use these cards to keep track of your attendance, which can also impact your grade. Since there is no textbook for this class, a poor attendance record will almost guarantee a failing grade. *You are responsible for the material covered in my class, whether or not you attend.*

Grading. At the end of the semester, I will total everyone’s points from quizzes, the mid-term, and the final, plot them on a graph, and determine the grades from that distribution. I write my exams so that there shouldn’t be any great surprises about the grades (e.g., 80%-90% is some kind of B, etc.). I reserve the right to make minor adjustments in grades based on class performance, attendance, etc., as mentioned above.

WFs. My deadline for agreeing to give a grade of WF is exactly one week after I hand back the midterm. After that, if you fail, your grade will be F.

Make-up Policy. DO NOT ASSUME YOU WILL BE GIVEN A MAKE-UP EXAM/QUIZ JUST BECAUSE YOU MISSED CLASS. With the exception of extraordinary situations, anything you miss counts as a “0”. If you are unsure about whether or not your situation falls under the “extraordinary” category, talk to me. I am more likely to be understanding if you talk to me *before* the fact than after the fact.

Cheating. JMU has an honor code, and you should abide by it. If I catch you cheating, I will hand over supporting evidence to the administration and let them deal with you as with you as they see fit.

Advice. It is one thing to watch me do problems on the board, and quite another to do them yourself under exam conditions, so DO YOUR HOMEWORK THE DAY IT IS ASSIGNED.