

Math 107: Explorations in Mathematics Syllabus, Spring 2007

Professor: **Dr. Jason Parsley**

Office: 334 Manchester Hall

Office hours: M 12-1, Tu 2:15-4:00, W 2:30-3:30, and by appointment

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1. Course Time & Location: MTWF 10-11, Manchester 020. Beginning on January 26th, we will use the Friday hour as a recitation.

2. Text: Burger & Starbird, *The Heart of Mathematics*

3. Teaching Assistant: We are fortunate to have Matthew Smith, a graduate student in the math department, as a TA for this course. Mr. Smith will lead certain recitations (on Fridays), grade, and hold office hours. His office is Manchester 333.

4. Homework. Homework will be assigned weekly. There will be two types of problems assigned:

1. **Drills.** These problems will reinforce what you've read and we've covered in class.
2. **Explorations.** These are more open-ended problems designed to make you think.

Assignments will be due on Wednesdays, in class. The exploration problems will be submitted and graded, but few of the drills will be submitted. However, you will need to do them for the quizzes.

Academic integrity is something I take quite seriously. You are bound to uphold the University Honor Code. For this course, here are my expectations: the assignments that you submit should be your original work. The key ideas for the problems should be yours; if you want to use an idea that is not yours, you must reference how you came to understand it. Having said all of this, I encourage you to discuss the course material with your classmates, just not the key ideas to a proof. When discussing a problem you understand, try to guide your classmates rather than just telling them the answer (please don't do that!)

6. Quizzes: Most Fridays we will have a quiz in recitation. The quiz will comprise 2-3 of the drill problems. If you do the homework, you'll do well on the quizzes. Unless you notify me of an absence in advance (at least by the Wednesday before), there will not be any makeup quizzes.

7. Tests & Final Exam: There will be two in-class tests and a final exam.

- 1st midterm: **F., Feb. 23**
- 2nd midterm: **F., Mar. 30**
- Final Exam: **W., May 9, 2-5 pm** *note: this is NOT the math block exam time*

8. Grade Calculation:

Homework	20%
Quizzes	20%
Test 1	15%
Test 2	15%
Final Exam	30%

If you are consistently able to perform basic computations and solve standard problems, you should earn at least a C in the class. If you follow this up with solving harder problems and/or doing well with the exploration problems, you are headed for an A or a B in the class. I will use the following grading scale:

A	90-100
B	75-89
C	60-74
D	45-59

I will use the plus/minus system for grades near these cutoffs. I may adjust this scale in your favor at the end of the semester, but the grading will not be more stringent than what is listed above.

9. Course material: Our plan is to have two topics going on at the same time. One of them will always be geometric or spatial in nature; the others are drawn from all aspects of mathematics. We should cover the following topics from *The Heart of Mathematics*

Geometry topics	Other mathematical topics
Pythagoras (4.1)	Fun & Games (ch.1)
the Golden Rectangle (4.3)	Fibonacci numbers (2.2)
Platonic Solids (4.5, 5.3), not-so-‘straight lines’ (4.6)	Primes & irrationals (2.3, 2.6)
4th dimension (4.7)	infinity (3.1-3.4)
Topology, Mobius bands, knots (5.1, 5.2, 5.4)	the mathematics of voting (8.4)
chaos (ch.6)	counting & taking chances (7.1-7.3)

If time allows, we will continue on with other sections of the book.