

Syllabus for Math 107: Exploring Mathematics

1 Contact Information

Professor: Stephen Robinson

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2 Office Hours

I hope that you will make a habit of visiting me during office hours. It is the best way for me to find out what my students are thinking, and it is the best way for my students to find out what my expectations are. No appointment is needed during the hours listed below. Just stop by. If you need help at another time, then it is best to check with me before stopping by. This time with students is one of the most pleasant parts of my job, so I hope that you will take advantage of it.

M,W,F 2:00-4:00

Or by appointment

3 Required Text

The Heart of Mathematics, second edition, by Burger and Starbird

4 Supplementary Text

How To Solve It, by Polya

A copy of this book will be kept on reserve in the library.

5 Teaching Assistant

We are fortunate to have Grey Ballard as a teaching assistant. You will see him during our Thursday classes, he will share the responsibility for grading homework and quizzes, and he will be available for help outside of class (times TBA).

6 Course Content and Goals

I plan to cover the following sections of the text

Chapter 1: 1,2,3,4

Chapter 2: 1,2,3,6,7

Chapter 3: 1,2,3,4

Chapter 4: 1,2,3,5,6

Chapter 5: 1,2,3,5

Chapter 6: 1,2,3,5

Chapter 7: 1,2,3,5,6

Chapter 8: 1,2,3,4,5 (We will see what time allows.)

The central goal of this course is to learn about problem-solving techniques and proof, i.e. *effective thinking*, within the context of some beautiful mathematics.

7 Homework

Regular homework is absolutely essential!

I will distribute a problem set every Friday, and then collect your solutions the following Friday. The number of problems assigned will generally be small, but my grading expectations will generally be high.

Your homework grade will count for 20% of your overall grade.

8 Attendance and Participation

At the end of the semester I will assign a participation grade that is worth 10% of your overall grade. You will get the full 10% if you contribute to classroom discussion, ask questions when you have them, and treat other students' comments with respect.

I will also take attendance on a regular basis. You can be absent up to four times with no penalty, but every absence beyond four will result in a percentage point being taken off of your A& P grade. For those who do not take this seriously, you should know that I believe in the utility of negative numbers and will allow for the possibility of a negative A& P grade.

9 Poster Session

During the semester I want each of you to learn about some interesting mathematical topic that has not been discussed in class. At the end of the semester everybody will have a chance to show what they have learned in a *Poster Session*. Your poster session grade will be determined by the combined assessment of your classmates, your T.A., and your instructor. This will be worth 20 % of your overall grade. I will give more details about this assignment during the first few weeks of class.

10 Quizzes

We will have an in-class quiz every third Thursday (9/14,10/5,10/26,11/16). The material on these quizzes will be fairly predictable for those who have attended class regularly, have done the assigned reading carefully, and have worked diligently on suggested problems. Your worst quiz score will automatically be dropped at the end of the semester. At the end of the semester your total quiz score will be worth 25% of your grade.

11 Final

I will be giving a final exam that is worth 25 % of your grade. The goal of this exam is for you to show me what you have learned about proof and problem-solving. I will describe this in more detail in class. The final exam

will be held from 2:00-5:00 on Tuesday, December 5. THIS IS NOT THE MATH BLOCK!

12 Grading Policy

If you consistently demonstrate an ability to perform standard computations and solve standard problems, then you have a good chance of earning a C or better. If you can also solve some more difficult problems and provide some insight as to why the methods work, then you have a good chance of earning a B or better. If you become adept at solving standard and nonstandard problems, and if you can clearly justify all of the methods that you use, then you have a good chance of earning an A. Hard work is a prerequisite for earning a good grade (A, B, or C), but no amount of work will guarantee you a particular grade. Just do the best that you can, and then be proud of the grade that you have earned. If you are ever unsure about a grading policy, or if you are not sure where you stand, then you are welcome to ask. Here is the grading scale that I will use at the end of the semester. I reserve the right to make adjustments to this scale, but I will not adjust the boundaries to anything higher than those listed below. Pluses and minuses are assigned to grades that are near a cutoff point.

A: Total $\geq 90\%$

B: $75\% \leq \text{Total} < 90\%$

C: $60\% \leq \text{Total} < 75\%$

D: $45\% \leq \text{Total} < 60\%$.