

# Math 100 – Survey of Mathematics

## Spring 2005 Syllabus

**PLEASE READ THIS DOCUMENT CAREFULLY. IT SETS OUT THE POLICIES BY WHICH THIS COURSE WILL BE RUN, AND ALL STUDENTS WILL BE ASSUMED TO HAVE READ AND AGREED TO THEM.**

### 1 Professor and contact information

**Professor:** David Ross

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**Secondary Email** [ross@math.hawaii.edu](mailto:ross@math.hawaii.edu)

**Email warning** The email given for me at the MyUH site for this course is wrong.

**Course Website** [www.math100.info](http://www.math100.info)

**Professor Website** [www.math.hawaii.edu/~ross](http://www.math.hawaii.edu/~ross)

**Office Hours** See website

The telephone is *not* a good way too reach me, best is always email. For Math 100-related questions, [ross@math100.info](mailto:ross@math100.info) is the better of the two addresses, as it will not get lost in all the other email I receive. However, I only check this account once or twice per day, so do not count on an immediate response.

Please remember that I have over 350 students in this class, and more in another class; be considerate to your fellow classmates by using the shared resources (including my time) wisely.

I will also have a student assistant who will be available for consultation; his location and consultation hours will be available on the course website some time during the first week of classes.

**Prerequisites** Matriculation at UHM assumes you have had a normal K-12 mathematics education. For this class I will assume you can do basic 10th-grade algebra, including using and understanding algebraic formulas and solving basic algebraic equations.

**Texts** The required texts for this course are:

1. Basic Concepts of Mathematics and Logic by Michael C. Gemignani (Dover)
2. Mathematics: The Man-Made Universe by Sherman Stein (Dover)
3. The Cartoon Guide to Statistics by Larry Gonick and Woollcott Smith (HarperResource)
4. From Here to Infinity by Ian Stewart (Oxford University Press)

**Coverage** Despite its name, the primary focus of the course will *not* be a general survey of mathematics; instead, we will focus on notions of mathematical thought and mathematical argument, with the hope that the student will be able to integrate it into other academic areas.

The course will examine several broad mathematical themes, including: Abstraction, Formalization, Rigor, Proof. The topics through which these themes will be developed might include: Mathematical Logic (from basic propositional logic through Gödel's Theorem); Set Theory (including notions of infinity, and the continuum hypothesis); Number systems (what is a number?); Number Theory; Probability; Statistics.

We will cover most of the Gemignani text, around half of Stein, most of Gonick and Smith, and selections from Stewart as backup. We will also cover several topics not included in these texts. This seems like a lot, and it *is* a lot, but there is considerable overlap in the material from these sources.

I will include or sacrifice topics as necessary for the sake of course coherence.

## 2 Grades

**Homework** I will give homework regularly. This will include mathematical exercises – both applied and theoretical – taken mainly from the required texts (though there will also be additional assignments *not* from these texts, which I will distribute to you either in class as handouts or online as posts on the website).

There will also be fairly extensive **reading assignments**, both from the required texts and from other sources, often online sources. These reading assignments **are not optional**, and are an integral part of the homework, even when they are not simply teaching specific mathematical skills.

I WILL NOT BE COLLECTING OR GRADING HOMEWORK. This is an unfortunate consequence of this class's size. However, in the creation of exams I will always make the assumption that you have mastered the homework, so it is YOUR RESPONSIBILITY to do the assignments and make sure you understand the material.

We will periodically allocate time in class for a discussions of the homework, and you can and should relay any questions you have about the assignments either during these discussion, or during other open question times, or during my office hours.

**Examinations** There will be three one-hour midterm examinations and one two-hour final examination. I reserve the right to schedule one additional exam, most likely a 'gateway' exam on high-school mathematics.

Important notes:

- The exams will all be multiple choice or short answer.
- The exams will cover all the material, both in class and out of class, based on the texts, on all supplemental readings, and on the material discussed in class.
- **THERE WILL BE NO MAKE-UP EXAMS OR QUIZZES UNDER ANY CIRCUMSTANCES.** With an adequately-documented excuse, ONE midterm can be replaced by the Final Exam score. Only a documented medical excuse, or a documented family emergency, will qualify for this replacement. **This does not include extracurricular activities of any sort, including Athletics.**

**Miscellaneous** If attendance starts to drop, short surprise quizzes will occasionally be given.

There is some slight possibility that extra credit final projects will be allowed, if the logistics can be worked out; we will discuss this later in the semester. Students are advised *not* to count on this being a possibility.

**Final Computation** Your grade will be computed as follows:

1. The exams will be curved, and each exam 'renormalized' so that the curves are roughly the same.
2. The renormalized exam scores will be added together, with the final counting as much as two midterms, and the lowest midterm counting only 50% of a normal midterm.
3. If there is extra credit work, or if I have had to give pop quizzes, these will then be factored in.
4. Your final grade will then be obtained from this total.

### 3 Other policies

**Attendance** Mandatory, though I will not take roll. Much of the material for this course does *not* appear in the texts or printed or online supplementary materials. It will be difficult to do well in this course if you do not attend. If you miss a class, it is your responsibility to find out what we covered. Do not, however, come to my office later in the day or week and ask me to tell you what we did during a class you missed.

**Website** The student is responsible to check the course web page (above) regularly for urgent information.

**FAQ** A list of “frequently asked question” (FAQ) will be maintained at the course website. Please read this.

**Academic Expectations** The Mathematics department has a document you should read concerning our academic expectations. A link to this document appears on the course web page, as well as on the departmental web page. Please read this.

**Cheating** Cheating is not permitted, and will not be tolerated. This includes copying from the papers of others, allowing one’s paper to be copied, using material without attribution, and so forth.

**Calculators** Calculators will not be permitted on examinations.

**Stupid Questions I** There are no stupid questions about mathematics. With a class this size, any question you have is sure to be shared by several others. You are encouraged to ask such questions, as they stimulate discussion.

**Stupid Questions II** There *are* stupid questions about course policy and procedure. These are questions for which the answers are readily available at the course website. You are required to make at least a minimal effort to find the answer to this kind of question before raising it. In particular, you should check this syllabus, the course FAQ, and the departmental document on policy. Students might be penalized for asking such question if they are clearly answered in these documents.

**Stupid Questions III** The question, “What do I need to do to pass the course?” always has the same answer, namely “Study the material and do well on the examinations.” Please do not come to me 2/3 of the way through the semester as if you’ve just discovered how badly you are doing and ask me this question - at that point it has become stupid. You are responsible for monitoring your own progress in the class.

**Classroom decorum** Students are expected to show respect for the other students, for the course, and for the University. Please come on time, do not

leave early, do not talk in class except in the context of classroom discussion. **No laptops, cellphones, radios, iPods, noisy newspapers, snoring.**