

MA/CS 109

Art and Science of Quantitative  
Reasoning

# A course in the Mathematical Sciences

- Mathematics
- Statistics
- Computer Science

# Questions:

## 1. What is Mathematics?

(or What are the Mathematical Sciences?)

What makes Mathematics different from other subjects? How can we tell when we are doing Mathematics?

First step: Mathematics is a verb—it is something you “do” not something you watch.

2. Why did you do Mathematics all through school? Why is there a “Quantitative” SAT exam, but not a “Scientific” SAT exam. What is it about Mathematics (or the Mathematical Sciences) that make it (them) so important?

# Good News

You already know more mathematics than 90% (maybe 99%) of the humans who have ever lived. You have studied mathematics since you were little. Learning more “techniques” is always useful...but better to address a more interesting (harder) question—What is math?

So we will remind you of techniques and facts and definitions—but “remind” is the key....

# Three Components of the Course

1. Mathematics: Look at 2 problems—one “pure” and one “applied”, but.....

All math starts with a problem, so all math is “applied math”.—It used to be that the study of prime numbers was the “purest of the pure” in Mathematics. Now the study of prime numbers is one of the Big Money fields in computer security and encryption.

# Three Components

1. Mathematics

2. Statistics: (and Probability)

Using data to make predictions—or better—“Quantifying uncertainty”. Our focus will be on what it means to quantify uncertainty and what can and can not be done with statistics.

# Three Components

1. Mathematics
2. Statistics
3. Computer Science (Professor Wayne Snyder):



# COURSE WEB PAGE

<http://www.cs.bu.edu/fac/snyder/cs109>

In process of being updated for this year...

# Nuts and Bolts

Text: None...we will have the slides, some readings/course notes, problems, discussion labs, etc, etc available on the course web page.

Good news and bad news: Save some money,  
BUT...

SO...Attendance in lecture and discussion are mandatory! If you can not attend, you **MUST** get the notes from a classmate and it is a good idea to talk to the classmate about what went on in class, what the assignments are, what they thought was hard/easy/unusual about lecture or discussion...

I will only take attendance if attendance is low... so if you can't come to class, **MAKE SURE** your classmates come (missing one or two classes will not count against you, missing more may...)

# Grades

Exams:

Midterm: 40%(middle of the semester)

Final: 50%

Homework/discussion section work/  
classroom work/attendance (if taken)/etc. 10%

# Questions?

- 1.