

**Instructor** Amites Sarkar

**Text** Discrete Mathematics and its Applications (5<sup>th</sup> ed.)  
Kenneth H. Rosen

### Syllabus

Logic; sets and functions; sequences, summations and induction; basic counting methods; recurrence relations; graph theory

### Overview

Since the invention of the computer 60 years ago, discrete mathematics has become more and more prominent and applicable. For instance, it is central to both the design and application of computers. In fact, computers cannot do calculus at all: a computer “solves” a differential equation using discrete mathematics. For this and other reasons, discrete mathematics is now used to model many things that were previously the province of calculus, e.g. neuron firing in the brain.

The subject also provides a great opportunity to learn **how to think for yourself** in a context where there is a correct answer. There are very few basic concepts, but you really will have to learn how to use them to solve problems, in order to be successful in this course.

### Relation to overall program goals

Among other things, this course will (i) enhance your problem-solving skills; (ii) help you recognize that a problem can have different useful representations (graphical, numerical, or symbolic); (iii) increase your appreciation of the role of mathematics in the sciences and the real world.

### Exams

**Midterm 1** Thursday 10 July  
**Midterm 2** Thursday 31 July  
**Final** Thursday 21 August

### Grading

The midterms are each worth 25%, and the final is worth 50%. If you feel too ill to take an exam, don't take it, but bring a doctor's certificate to me when you feel better and I will make arrangements.

**Office hours**

My office hours are 10–10:50 on Mondays, Tuesdays, Wednesdays and Thursdays, in 216 Bond Hall. My phone number is 650 7569 and my e-mail is [amites.sarkar@wwu.edu](mailto:amites.sarkar@wwu.edu)