CS111B - Discrete Mathematics

Lecture 1: Introduction and Foundations

by Arsen Mamikonyan

Logistics

Course: Discrete Mathematics

Lectures

Time MWF, 10:30-11:20 (from Aug 28 to Dec 08)

Location 113W

Please, don't be late..

Problem Solving

TA Problem Solving TBA (starting next week)

TA Naira Babayan

Office Hours TBA (starting next week)

+ office hours by appointment (email me or Naira)

Graded Homeworks (10% of the total grade)

One homework weekly (other than exam weeks)

due at the beginning of Friday Lecture

Attendence and Quizzes (20% of the total grade)

Attendence is mandatory

There will be a quiz roughly every other week, not announced beforehand.

Mid-term exams (30% of the total grade)

- 2 midterm exams (dates will be announced soon)

Final exam (40% of the total grade)

- Final exam in the end of the semester

Textbooks

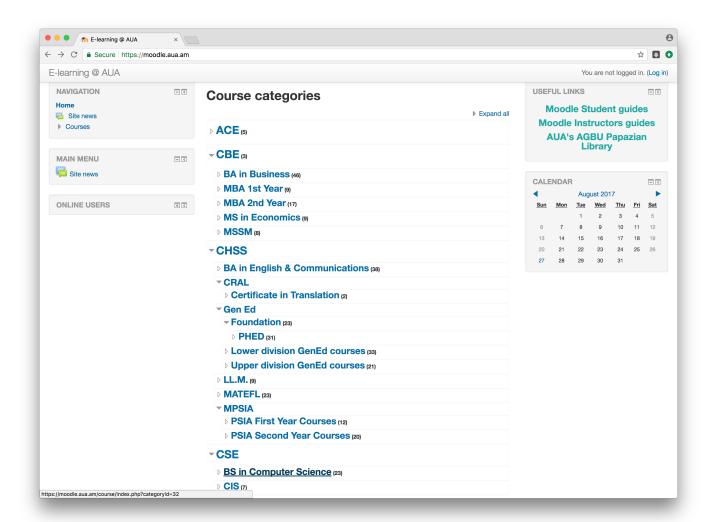Edward R. Scheinerman, Mathematics - A Discrete Introduction (3rd Ed), Brooks Cole.

Eric Lehman, F Thomson Leighton, Albert R Meyer - Mathematics for Computer Science

available on Moodle.

Moodle

All this information and textbooks are available on moodle.aua.am (http://moodle.aua.am/)

Make sure to register on Moodle!

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CS 107-B Probability (Sec. B) - Fall 2017

CS 107-C Probability (Sec. C) - Fall 2017

CS 110 Introduction to Computer Science - Fall 2017

CS 111 DM CS 111 Discrete Mathematics - Summer 2017

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CS 111-B Discrete Mathematics (Sec. B) - Fall 2017

CS 111-C Discrete Mathematics (Sec. C) - Fall 2017

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CS 121-A,B Data Structures (Sec. A, B) - Fall 2017

CS 121-C Data Structures (Sec. C) - Fall 2017

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Arsen Mamikonyan

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(last 10 minutes: 1)
Arsen Mamikonyan

What is Discrete Mathematics?

Definition Discrete mathematics is the study of mathematical structures that are fundamentally discrete rather than continuous.

Discrete mathematics includes:

- number theory
- combinatorics
- probability
- set theory
- algebra
- mathematical logic
- graph theory
- etc...

Proofs

Definition. A mathematical proof of a *proposition* is a chain of *logical deductions* leading to the proposition from a base set of *axioms*.

Definition. A proposition is a statement (communication) that is either true or false.

Proposition $2 + 3 = 5$

Proposition $1 + 1 = 3$

Claim. For every nonnegative integer n the value of $n^2 + n + 41$ is prime.

A prime is an integer greater than 1 that is not divisible by any other integer greater than 1.

For example, 2, 3, 5, 7, 11, are the first five primes.

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