New York University Tandon School of Engineering
Computer Science
Course Outline MA-UY 2314 Discrete Mathematics
Fall 2018
Professor Eugene Callahan
Monday – Wednesday
Two sections:
ALEC: 9:00 – 10:20 AM; Jacobs 474
BLEC: 11:30 – 12:50 PM; Dibner 400

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Office hours: Monday and Wednesday, 2-3 PM, or by appointment

Course Pre-requisites

Math Diagnostic Exam or MA-UY 912 or MA-UY 914 (minimum calculus level required)

Course Description

Introduction to the central mathematical concepts that arise in computer science. Emphasis is on proof and abstraction. Topics include proof techniques; combinatorics; sets, functions, and relations; discrete structures; order of magnitude analysis; formal logic; formal languages and automata.

Course Objectives

1. Understand the grounding of CS in discrete mathematics.
2. Be able to follow and construct proofs.
3. Understand recurrences.
4. Be able to analyze algorithmic complexity.
5. Understand graph theory and how it is used in CS.
6. Understand number theory and its connection to hashing and cryptography.

Course Structure
Two lectures per week, one recitation lecture per week, and regular homework and quizzes.

Readings

The required text for the course is: ZyBooks online discrete mathematics textbook.
To acquire it:
1. Sign in or create an account at learn.zybooks.com
2. Enter zyBook code: NYUMA2314CallahanFall2018
3. Subscribe

The supplemental text for the course is: *Discrete mathematics and its applications*, 7th ed. Kenneth Rosen, McGraw Hill.

Course requirements

Read all textbook material before class; complete all homework. Quizzes will be given in recitation lectures: you will score zero for the quiz if you miss the lecture.

A *rough* grade breakdown, which will be adjusted as the semester proceeds:

Quizzes in recitation lectures: **Approx.** 10% of grade.

Homework: **Approx.** 20% of grade

Mid-term Exam, **Approx.** 10/24/18, 25% of grade

Final Exam, **Approx.** 12/21/18, 45% of grade

These weights will be adjusted to give students the benefit of the doubt, i.e., an outstanding final will be weighted more heavily than a bad mid-term.

We are going to attempt to cover one chapter in the textbook per week, but we will adjust this schedule as we go along. A rough schedule is available on the course website.

Moses Center Statement of Disability

If you are student with a disability who is requesting accommodations, please contact New York University's Moses Center for Students with Disabilities (CSD) at 212-998-4980 or mosescsd@nyu.edu. You must be registered with CSD to receive accommodations. Information about the Moses Center can be found at www.nyu.edu/csd. The Moses Center is located at 726 Broadway on the 2nd floor.

NYU School of Engineering Policies and Procedures on Academic Misconduct
   A. Introduction: The School of Engineering encourages academic excellence in an environment that promotes honesty, integrity, and fairness, and students at the School of Engineering are expected to exhibit those qualities in their academic work. It is through the process of submitting their own work and receiving honest feedback on that work that students may progress academically. Any act of academic dishonesty is seen as an attack upon the School and will not be tolerated. Furthermore, those who breach the School's rules on academic integrity will be sanctioned under this Policy. Students are responsible for familiarizing themselves with the School's Policy on Academic Misconduct.

B. Definition: Academic dishonesty may include misrepresentation, deception, dishonesty, or any act of falsification committed by a student to influence a grade or other academic evaluation. Academic dishonesty also includes intentionally damaging the academic work of others or assisting other students in acts of dishonesty. Common examples of academically dishonest behavior include, but are not limited to, the following:

1. Cheating: intentionally using or attempting to use unauthorized notes, books, electronic media, or electronic communications in an exam; talking with fellow students or looking at another person's work during an exam; submitting work prepared in advance for an in-class examination; having someone take an exam for you or taking an exam for someone else; violating other rules governing the administration of examinations.
2. Fabrication: including but not limited to, falsifying experimental data and/or citations.
3. Plagiarism: intentionally or knowingly representing the words or ideas of another as one's own in any academic exercise; failure to attribute direct quotations, paraphrases, or borrowed facts or information.
4. Unauthorized collaboration: working together on work that was meant to be done individually.
5. Duplicating work: presenting for grading the same work for more than one project or in more than one class, unless express and prior permission has been received from the course instructor(s) or research adviser involved.
6. Forgery: altering any academic document, including, but not limited to, academic records, admissions materials, or medical excuses.