CSC4-151 Discrete Mathematics for Computer Science
November-December 2019
Course Syllabus

Instructor: Professor Tony deLaubenfels

Office: West 212

Office Hours: 2:30 p.m. - 3:30 p.m. Monday through Friday

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Text: Discrete Mathematics Interactive Text, Zybooks (2017). We will all or part of chapters 1-13. To subscribe to our text:

1. Sign in or create an account at learn.zybooks.com
2. Enter zyBook code
   CORNELLCOLLEGECSC151DelaubenfelsWinter2019
3. Subscribe

Class meetings: There will be Lecture/ Discussion each morning from 9 a.m. until around 11 a.m. in our West Hall 213 classroom. Four days a week, we will have afternoon class from 1:15 p.m. to 2:30 p.m.

Evaluations: Your grade will be based on your performance on homework, projects, and exams according to the following schedule:

Exam 1	75 points
Exam 2	100 points
Final Exam	125 points
Reading, Assignments, Quizzes	100 points
TOTAL possible	400 points

Exam schedule:

Exam 1 Chapters 1-3 Friday November 22

Exam 2 Chapters 4-9 Wednesday, December 11

Final Exam Chapters 10-13 + comprehensive Wednesday, December 18

Course Objectives:

Students will develop knowledge and skills in the following areas of discrete mathematics:

Logic

> Propositional, predicate, formal proofs using inference rules in both

Sets, functions, sequences and series

Algorithms

> Basic algorithms—search (linear, binary), sort, greedy

> Complexity—Big O, Big Theta

Proofs

> Proof strategies

> Experience proving in several elementary genres: Set identities, 1-1 and onto functions, Big-O, number theory, properties of relations

> Mathematical Induction (emphasis)

Recursion

> Functions, algorithms, structures

Basic number theory

> Primality, gcd including Euclid's algorithm, mod (both congruence and function), divisibility

> Public key encryption

Basic combinatorics

> Combinations, permutations, pigeonhole principle, binomial theorem

> Finite probability

Relations

> Relation representation (digraph, matrix)

> Properties of relations: reflexive, symmetric, transitive, anti-symmetry (esp. for partial order), equivalence relations and equivalence classes

Basic graph theory

> Terminology, introduction to graph algorithms

This course supports the Educational Priorities and Outcomes of Cornell College with emphasis on knowledge, inquiry, reasoning, and communication.

1) **Assignments.** I expect students to spend about about 25 hours a week, outside of class, reading the text, working exercises, and preparing for exams. Reading and homework exercises will be assigned daily and monitored/graded as part of our interactive text.

2) **Attendance and classroom protocols**. Class attendance and participation is expected. I do not take attendance, but many days there will be some sort of work (quizzes or activities) that you will need to be in class to complete. During class you are allowed to use computers to follow our text or to take notes (this is difficult in a mathematics course) but you should not use e-mail, browsers, ims, etc. No texting in class, please.

3) **Drop Policy**. I follow the official college drop policy; i.e. in order to be eligible for a third Friday drop, you must attend class and complete all course work.

4) **Academic Integrity**. Cornell College expects all members of the Cornell community to act with academic integrity. An important aspect of academic integrity is respecting the work of others. A student is expected to explicitly acknowledge ideas, claims, observations, or data of others, unless generally known. When a piece of work is submitted for credit, a student is asserting that the submission is her or his work unless there is a citation of a specific source. If there is no appropriate acknowledgment of sources, whether intended or not, this may constitute a violation of the College's requirement for honesty in academic work and may be treated as a case of academic dishonesty. The procedures regarding how the College deals with cases of academic dishonesty appear in The Compass, our student handbook, under the heading "Academic Policies – Honesty in Academic Work."

5) **Accommodation.** Students who need accommodations for learning disabilities must provide documentation from a professional qualified to diagnose learning disabilities. For more information see cornellcollege.edu/disabilities/documentation/index.shtml

Students requesting services may schedule a meeting with the disabilities services coordinator as early as possible to discuss their needs and develop an individualized accommodation plan. Ideally, this meeting would take place well before the start of classes. At the beginning of each course, the student must notify the instructor within the first three days of the term of any accommodations needed for the duration of the course.