cse547, math547
DISCRETE MATHEMATICS

Professor Anita Wasilewska

Spring 2018

COURSE SYLLABUS

The course webpage contains

detailed Lectures slides

very detailed solutions to homework problems

some of the previous quizzes and tests

all materials are designed to help you to study

Concrete Mathematics

A Foundations for Computer Science

R. Graham, D. Knuth, O. Patachnik

Addison-Wesley Publishing Company, Third edition

Concrete Mathematics is defined in the book as

"a controlled manipulation of (some) mathematical formulas using a collection of techniques for solving problems"

Original textbook was an extension of the chapter "Mathematical Preliminaries" of Knuth's classical book Art Of Computer Programming

Concrete Mathematics hopefully will help you in the art of writing programs and in better thinking about them

Course Description

We will cover the course textbook closely

We plan to cover all or some of material from Chapters 1-5

The textbook is supplemented by very detailed Lecture Notes

Lecture Notes contain a lot of additional material **extending** very concise book presentations

Course Description

The course webpage includes well written and detailed solutions of majority of Homework Problems from the chapters we plan to cover

Students are advised to work to solve the assigned Homework Problems, write their own solutions

Then they can use the published solutions to **compare** them with their own solutions for precision and correctness

Course Description

If time allows we will also cover some chosen topics in classical Discrete Mathematics

In this case I will provide Lecture Notes and sets of Problems

You can also use any Discrete Mathematics book as an extra reading, if needed

Grading

Grading Components

During the semester there will be a **Practice Midterm**, a **Midterm**, **three One Question Quizzes** and a **Final** examination

There also will be assigned sets of homework problems students must work out and learn for the tests

The complete set of solutions to all homework problems are **posted** on the course webpage

Grading Components

Homework Problems

There are 6 sets of **homework problems**

Not all of them might be covered

None will be collected or graded

Solutions to homework problems are on the course webpage for students to be able to check correctness their own solutions! and to help them study the material

Grading Components

On **Quizzes** and **Tests** students are expected to write **detailed solutions** explaining all steps and methods used, as it is done in our **Lecture Notes** and in posted **Homeworks Solutions**

We will cover some of such detailed solutions in class

Grades for Quizzes and Tests will depend on the form, details, and carefulness of your written solutions

Grading Components

There will be the following Tests and Quizzes

3 Quizzes (25pts each)

These are **one question**, 10 -15 minutes Quizzes covering Homework and Lectures problems

Practice Midterm (25pts) - in class

Midterm (100pts) - in class

Both tests cover material from chapters 1, 2 covered in class before the test and corresponding Homework problems solutions examples as posted on the course web page.

Finall (100pts) - in class

It will cover all book material covered in class, as reflected in Tests and Quizzes.

Grading Components

All test are CLOSED NOTES and CLOSED BOOK

A student found using notes in any form (especially electronic) during a **test** will receive **0 pts** **for the test**.

FINAL GRADE COMPUTATION

NONE of GRADES will be CURVED

Records of students grades are being kept by the course TA

During the semester you can earn 300pts or more (in the case of extra points)

The **% grade** will be determine in the following way:

# of earned points divided by 3 = % grade

The % grade is **translated** into a letter grade in a standard way as follows

100 - 90 % is A range

A (100 - 96%),   A- (95- 90%)

89 - 80 % is B range

B- (80 - 82%),   B (83 -85%),   B+ (86 -89%)

79 - 70 % is C range:

C- (70- 72%),   C (73-75%),   C+ (76-79%)

69 - 60 % is D range

F is below 60%

Course Contents and Schedule

Part One: Concrete Mathematics

The course will follow the book very closely and in particular we will cover some, or all of the following chapters and subjects.

Chapter 1   Recurrent Problems, pp 1-21

Chapter 2   Sums, pp 21-67

Chapter 3   Integer functions, pp 67 -102

Chapter 4   Number Theory, pp 102- 123

Chapter 5   Binomial Coefficients pp 153- 204

Chapter 6   Special numbers pp 243- 264 (reading)

Discrete Mathematics - if time allows

Some Lecture Notes and Problems (Hmk 6) are posted on the course webpage

We will cover them if time allows

TESTS SCHEDULE

This is a **preliminary schedule**

Changes and updates, if any, will be advertised in the NEWS section on the course webpage

Q1 Monday, February 12

Practice Midterm   Monday, March 5, in class.

Use it as your own PRACTICE - write carefully all solutions

Only **one Problem** will be corrected

Spring Break MARCH 12 - 18

Midterm   FRIDAY, March 23, in class

It covers homework problems from chapters 1, 2 (all solutions posted on the course web page), plus problems in the Lecture Notes that were covered in class **before** the Practice Midterm

TESTS SCHEDULE

Q2 Monday, April 9

Q3 Monday, April 23
May 4

FINAL FRIDAY, May 4 in class

Final covers homework problems from all Quizzes, hmks and Tests