cse547, math547
DISCRETE MATHEMATICS

Professor Anita Wasilewska

Spring 2017

COURSE SYLLABUS

Course Web Page
www.cs.stonybrook.edu/~ cse547

The webpage contains:

detailed lectures slides;

very detailed solutions to homework problems;

some of previous tests;

all to be used for study

Course Text Book

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 ”Mathematical Preliminaries” of Knuth’s book of ART OF COMPUTER PROGRAMMING

Concrete Mathematics is supposed (and hopefully will) to help you in the art of writing programs and 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 often contain some additional material extending very concise book presentations

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

Students need to solve them, compare with presented solutions for the precision and correctness

The precision of their work will be tested on tests

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

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 problems are **posted** on the course webpage

The book also contains majority of solutions but they often are just answers, or are not complete so I provide you with well written, complete solutions to study from

Grading Components

Homework Problems

There are 6 sets of 6 Homework problems. Not all of them might be covered.

None will be collected or graded

Solutions to homework problems are on our webpage for you to check correctness your own solutions! and to help you study

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

3 Quizzes (25pts each)

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

Practice Midterm (25pts)

Midterm (100pts)

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)

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

If a student is found using notes or a book during a test, he/she will receive AUTOMATICALLY **0 pts for a given test**.

FINAL GRADE COMPUTATION

NONE of GRADES will be CURVED

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

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 13

Practice Midterm Wednesday, March 8, in class.

Use it as your own PRACTICE - write carefully all solutions

Only **one Problem** will be corrected

Spring Break MARCH 13 - 19

Midterm Monday, March 20, 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 10

Q3 Monday, April 24

Last Day of Classes May 3

FINAL will be given during the Finals week, May 9 - 17, exact time and place t.b.a.

Final covers homework problems from all chapters that were covered in class