**Course Syllabus**
**COMP 283 Discrete Structures**
Summer 2017

**Meeting Place:** FB 009
**Meeting Time:** 1:15 PM - 2:45 PM, MoTuWeThFr (every weekday)
**Course Homepage:** http://cs.unc.edu/~yangk/comp283/home.html
**Piazza Homepage:** https://piazza.com/unc/summer2017/comp283/home

**Instructor:** Kecheng Yang
**Office:** SN 139
**Email:** yangk@cs.unc.edu
**Office Hour:** 2:50 PM - 4:00 PM, TuTh, or by appointment
**Teaching Assistant:** No TA for this course -- the instructor is responsible for all questions.

**Course Description:** This is a fundamental course in Computer Science. Many theories, systems, and applications are built on discrete structures, such as Boolean logics, sets, functions, relations, and graphs. This course introduces such discrete structures with mathematical specifications, and formal proof techniques that establish their properties.

**Target Audience:** This course aims to provide a solid theoretical basis of discrete structures for students who are interested in Computer Science. This course is critical to having a deeper understanding of many topics in Computer Science and therefore is a prerequisite for many higher-level COMP courses. Thus, this course is targeted at students who intend to take those courses.

**Textbook:** *Discrete Mathematics with Applications, 4th Edition,* by Susanna S. Epp
**Prerequisite:** MATH 231 (Calculus of Functions of One Variable - I) or MATH 241 (BioCalculus I)

**Grading:**

- Quizzes - 5%
- Homework - 25%
- Midterm Exam - 30%
- Final Exam - 40%

*Quizzes* will be in class without a prior notice. They should be designed as no need for particular preparation. In calculating your final grade, your lowest quiz score will be dropped.

*Homework* problem sets will be distributed both in class and online. Each homework is due in class on the due date. At the same time, the solutions will be distributed, and therefore no late homework will be accepted. (Special situations can be considered as exemptions on a case-by-case basis, but it is your responsibility to discuss with the instructor and get approved in advance.) In calculating your final grade, your lowest homework score will be dropped.

*Midterm Exam* will be conducted in class with a time limit of 90 minutes. There will be only one midterm exam this semester, and the specific exam date is to be announced. The midterm exam will be closed-book; however, one Letter-size cheat sheet will be allowed. (You can write or print whatever you want on the cheat sheet on one or two sides.)

*Final Exam* will be on Thursday, June 22, 11:30 AM - 2:30 PM, according to the UNC Summer School Schedule (http://summer.unc.edu/calendars/class-and-final-examination-schedules/). The final exam is closed-book, too; however, this time, two cheat sheets are allowed.

No any form of collaboration is allowed for *Quizzes*, *Midterm Exam*, and *Final Exam*. Discussions on *Homework* are encouraged; however, each student has to write up the final solutions independently. That is, copying solutions from another student, the Internet, books, etc. is strictly forbidden and will be considered as a serious Honor Code violation.

Submitted solutions must be written (or printed for *Homework*, if you prefer) neatly. Illegible solutions may not be graded on the instructor's discretion. Also, solutions will be graded not only by the correctness but also by the style (clarity, simplicity, elegance, etc.); the bottom line is that the instructor is convinced that the solutions are correct.

**Class Participation:** This class will be far more enjoyable for everyone if all students come to class ready and willing to discuss the material to be covered. I plan to reward those who participate in class by increasing their final grade by up to half a letter grade. I also reserve the right to add a similar negative "reward" for those who do not observe appropriate etiquette in class.

**Class Etiquette:** You are expected to maintain proper etiquette in class. This includes:

- Not making a habit of arriving late, or leaving in the midst of class. If you must be late once or twice, take an aisle seat quietly; likewise, if you must leave early.
- Keeping electronic devices, including cellphones, tablets, and laptops, silent in class, and not using them for purposes irrelevant to this course.
- Not talking in class. Private discussion between students, even whispers, carry surprisingly well and are a real distraction to those seating near you and to the instructor.

We will try to be courteous to you and we ask that you be courteous to others as well. Thank you.

**Honor Code:** The UNC Honor Code is in effect in this course. Suspicious violations may be reported to the university for further investigation.

**Topics to Be Covered**: (Due to time constraints, not every section in the following chapters will be covered.)

- Chapter 1. Speaking Mathematically
- Chapter 2. The Logic of Compound Statements
- Chapter 3. The Logic of Quantified Statements
- Chapter 4. Elementary Number Theory and Methods of Proof
- Chapter 5. Sequences, Mathematical Induction, and Recursion
- Chapter 6. Set Theory
- Chapter 7. Functions
- Chapter 8. Relations
- Chapter 9. Counting and Probability
- Chapter 10. Graphs and Trees

**Disclaimer:** The instructor reserves to right to make changes to the syllabus, including the topics to be covered. Important changes will be announced as early as possible.