1 Administrative Information

- Instructor: Chien-Chung Shen

- Contact Information:
  - Office: Smith Hall room 450
  - Email: cshen@udel.edu
  - Phone: (302) 831-1951

- Lecture meeting time and room: TuTh 11am–12:15pm @ Alison Hall room 325

- Laboratory meeting time and room: W 5:45pm–6:35pm @ Spencer Lab room 010

- Office Hours:
  - Friday 10:30am – 12:30pm
  - By appointment
  - Any changes will be posted and will be announced in class

- Teaching Assistant:
  - Email: TBA
  - Office: Smith Hall 102A
  - Office Hours: TBA

- Course website: [https://www.cis.udel.edu/~cshen/220](https://www.cis.udel.edu/~cshen/220)

- Required Textbook: [xyBook: Data Structures and C++](https://www.cis.udel.edu/~cshen/220)

- Recommended textbooks:
  - [Tim Roughgarden: Algorithms Illuminated: 3-part series](https://www.cis.udel.edu/~cshen/220)
  - An introduction to the C++ language
  - Detailed info on C++ features and standard library functions and templates
2 Course Statement

**Programs = Algorithms + Data Structures**

This course is an introduction to data structures and algorithm design. It covers the major data structures and program design principles which provide you with the background required for further study in Computer Science. The course also covers algorithm analysis to highlight the crucial choices to be made regarding best use of space, time, and programming effort. All code examples and programming projects will be in C++.

3 Student Background

The pre-/co-requisites for this course are:

- **Pre-requisites**: a minimum grade of C− in CISC 210 (Introduction to Systems Programming)
- **Co-requisites**: MATH 210 (Discrete Mathematics I) or MATH 241 (Analytic Geometry & Calculus A)
- Ability to design, code, compile, and execute programs in C++ on a computer running UNIX/Linux.

I expect that you are here to learn, and are willing to work hard on it.

4 Work Requirement

During the semester, you are responsible for participating in class discussion/presentation, completing the assigned readings and activities, homework/programming assignments, quizzes, one midterm exam and the final exam.

1. Readings and Participation Activities

   - It is required that you purchase the zyBook textbook and complete the assigned readings and participation activities and exercises

2. Design, Rank, Complete, and Grade Homeworks/Programming Assignments: The course will adopt the pedagogy of **By The Student (BTS): learn** by the students, **assign** by the students, and **grade** by the students.

   - Students in groups of 3 will be asked to design homework (programming) assignments based on course materials
   - Designed homeworks will be voted/ranked by the students to be rewarded with extra points
   - Designed homeworks will be completed/programmed by the students
   - Designed homeworks are to be graded by the students

3. Individual Homework/Programming Assignments

   - **Individual** homework and programming assignments will be given. They will be described in more detail in each assignment.
   - Late assignments will be penalized by 10% per day.
4. Quizzes

- Weekly quizzes will be held every Tuesday or Wednesday at the beginning of class, unless announced otherwise. They will be based on recent course readings and assignments.

5. Exams

- Midterm exam – TBA
- Final exam – TBA
- Exams will be based on course readings, class discussions, and homework/programming assignments.

Attendance is mandatory, as we will have class discussion and presentation. If you do happen to miss a class, you are responsible for finding out what material was covered and if any administrative announcements were made.

5 Grading

- Final scores will be determined using the following formula:

  10% zyBooks Participation Activities and Exercises
  32% Homework/Programming Assignments (including class participation [discussion and presentation])
  15% Quizzes
  18% Midterm Exam
  25% Final Exam

Final grades will be determined according to the following table.

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- I will not assign incompletes unless it is for a documented medical reason.

6 Schedule

The exact amount of lecture time devoted to each topic (and therefore homework/programming assignment dates) is subject to change, though the ordering of topics will remain generally the same.

- Introduction to Data Structures and Algorithms
- Searching and Algorithm Analysis (Recursion)
- Sorting Algorithms
- Lists, Stacks, and Queues
- Hash Tables
- Trees
• Balanced Trees
• Heaps
• Graphs
• B-trees
• Sets

7 Academic Honesty

I don’t mind if you help each other with understanding the material; in fact, I encourage it. However, **all** work turned in on homework assignments, programming assignments, and exams must be your (team’s) own work. If any portions of homework assignments, programming assignments, or exams are found to be shared between two (or more) students/teams, there will be **0 (zero)** credit given to **all** students concerned and all students will be disciplined. We will act harshly at any sign of plagiarism or other academic misconduct. This policy is in the interest of those students who do their own work, which hopefully applies to all of you in this class. I encourage you to familiarize yourself with the University’s Policy of Academic Dishonesty found in The Official Student Handbook.

8 Laptops, Tablets and Cellphones

I love my job teaching at UD, and promise to work extremely hard to make this class exciting and challenging. In return, I expect your full attention in class. I believe cell phone texting, using a laptop for doing other class assignments, reading emails, playing video games, visiting Facebook, Twitter, etc., while someone is working to educate you is as rude as it gets, and I will be personally offended. At the beginning of class, turn off your cellphones, shut down your games, and close your Gmail/Facebook/Twitter pages. If you believe this policy is too severe, I ask you to please take Data Structures from another faculty.