Instructor: Joseph Peters  
TASC I - 9009  
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Office hours: Mon 14:00 – 15:00, Wed 11:00 – 12:00, or by appointment

TAs: Yanting Deng yantingd@sfu.ca  
Yu Tang yu_tang@sfu.ca  
Office hours: Wed 13:30 – 14:20, Fri 11:30 – 12:20, ASB 9808

Lectures: Mon, Wed, Fri 12:30 – 13:20, AQ 3003

Grading:  
Homework Problems 20%  
Quizzes (3 × 50 minutes) 3 × 10%  
Final Exam (3 hours) 50%

Website: www.cs.sfu.ca/~peters/307/index.html

Course Organization

This course is primarily a course on problem solving - choosing good approaches and recognizing when a solution is a good solution. Data structures and algorithmic paradigms are the source material used in this course to learn about problem solving and analysis of the solutions. Problem solving is not something that can be learned by listening to somebody talk about it or by watching somebody present solutions. It requires active involvement and lots of practice. This course is organized to encourage active participation and practice. Students are encouraged to discuss the course material and concepts with each other if this helps you to learn. However, read the discussion below about collaboration on homework very carefully.

The course will be organized into five units of approximately the same length (except the first unit is longer). Readings for each unit will be announced in advance. I will generally present the material in a conceptual way in lectures and leave the details to the textbook. Students are encouraged to read the material in the textbook before the lectures so that lecture time can be used to provide intuition, clarify difficult material, and answer questions.

Course Outline

The course will cover most of Parts I and II of the textbook (Chapters 1-9), Chapters 10, 11, and 12 from Part III, Part IV (Chapters 15-17), Chapter 21 from Part V, selected topics from Part VI, and some topics that are similar to Chapters 13 and 18 for which I will provide supplementary reference material. Time permitting, I will do a short introduction to NP-completeness (based on Chapters 34 and 35). I will cover most of Chapters 1-5 and Chapter 10 quickly and incompletely because most of this material should be familiar from the prerequisite courses. I will assume knowledge of most of the material in Part VIII (Appendices A-D). I will generally not cover starred sections except possibly Section 21.4.
Unit | Chapters | Topics
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1 | 1–5, 10, 17, Appendices A–D | Foundations
2 | 6–9 | Sorting and Order Statistics
3 | 11, 12, AVL trees, 2-3 trees | Data Structures
4 | 15 | Dynamic Programming
5 | 16, 23, 21 | Greedy Algorithms

**Homework**

Homework problems and sometimes exercises will be assigned for each unit. The problems involve new problem-solving techniques or new concepts or methods. The exercises are more mechanical and are intended for practice and to reinforce material. The exercises will not be graded.

The homework problems will be collected and graded. You are encouraged to consult with the instructor, the TA, and your classmates to clarify the problems. However, these problems are intended to be individual work and should not be solved in a group setting with your classmates. The solutions that you submit must be entirely your own work; we will not accept solutions copied from the Internet or papers or books or other students. Copied solutions will be considered to be plagiarized which is a serious academic offence. Of course, you may freely use the material in the course textbook and any other supplementary material that is distributed in class. If you are using other material (such as another textbook), please give references to your sources. If you have any questions about this policy, please ask.

The homework problems and exercises and the homework due dates will be posted on the course website. Homework should be submitted in the course assignment box in CSIL no later than 12:15 PM before class on the due date. The box will be emptied at 12:15 PM and late homework will not be accepted or graded.

**Quizzes and Final Exam**

There will be three 45-minute in-class quizzes, each covering approximately one quarter of the course material. The quizzes are *no aids* (closed book, no calculators or other electronic devices). Details will be posted on the course website.

The Final Examination will be a three hour exam on Sunday December 8, 12:00 to 15:00, and will cover all parts of the course. The final exam will be *no aids*. The room will be announced later.

**Course Resources**