CS 361 Algorithms and Data Structures
Syllabus – Fall 2015

Course Description

This course is an introduction to the design and analysis of algorithms for fundamental problems in computer science. Students will learn about design techniques such as divide-and-conquer, dynamic programming, and greedy algorithms along with more advanced topics such as NP-completeness. Students will also learn how to analyze the efficiency of an algorithm using asymptotic analysis, and proof techniques (e.g. induction) for proving correctness. In addition to algorithms, this course covers more advanced data structures such as heaps, red-black trees, 2-3 trees, and graphs.

Course Details

Instructor: Prof. America Chambers (alchambers@pugetsound.edu, Thompson 405)

Office Hours: MW 2:30pm – 4:00pm, Thurs 1:15pm – 2:45pm (or by appointment)

Course Time and Place: MWF 12 – 12:50pm in Thompson 399

Course webpage: `http://mathcs.pugetsound.edu/~alchambers/cs361`

Course communication: This course uses Piazza for course communication – e.g., course announcements

Textbook: Thomas Cormen, Charles Leiserson, Ronald Rivest, and Clifford Stein. *Introduction to Algorithms.* 3rd Edition. (Required)

Course Breakdown

Grading: Grades in the course are based on four components:

50%	Homework Assignments
20%	Midterm
20%	Final
10%	Friday Quizzes

Your work in this course will fall into several major areas:

Readings: Each class will have an accompanying reading assignment taken from the textbook. It is expected that you complete the reading before the corresponding class period. The readings for each class will be posted in advance on the course webpage.

Homework Assignments: There will be 6 homework assignments in this class (due approximately every two weeks). Most homework assignments will be written problems but two will have a programming component (all programming will be done in pairs). Assignments are due at the date and time posted. Assignments will be penalized by $3^n\%$ for $n \leq 4$ where n is the number of days the assignment is submitted late.

Friday Quizzes: There will be regular quizzes during the first 5 minutes of every Friday class. This is a great way for me to know what topics I should cover again and can also help you understand what topics

you need to study more. Friday quizzes cannot be made up but your two lowest scores will be dropped.

Exams: There will be a midterm and a final exam in this class. The final exam is scheduled for Wednesday December 16, 2015. The midterm is *tentatively* scheduled for the week of Monday October 12th. This date is flexible and may change. Details will be given closer to the exam dates.

Course Policies

- Please do not bring laptops to class. Class periods are quite short and we need to make the most of every minute. If you have an accommodation in which you require a laptop, please let me know.
- Please indicate on each homework assignment with whom (if anyone) you worked.
- Attendance is mandatory.

Academic Honesty

Students are encouraged to discuss general ideas and approaches to the homework problems. However, when you write up the final solution to a problem, you should not look at anything but your own notes and your own scratch work. In particular,

- you should not look at someone else's write up or solutions posted on the internet
- answers should not be written on the board or passed around on a sheet of paper
- you should not take a picture of anything written on the board or a sheet of paper

In general, you should thoroughly understand any solution you submit. As such, I reserve the right to ask a student to re-solve a problem. An inability to do so will be considered evidence of academic dishonesty. *Please indicate on each homework assignment with whom (if anyone) you worked.*

All programming in this course will be pair programming. Any code submitted must represent the work of you and your partner only. Accordingly, you should never read or copy another student's code, exchange computer files, share your code, use code from the internet or past students, or in general hand in work done by someone else under your own name(s).

Failure to abide by these rules is considered plagiarism. The first offense typically results in failure in the course. Please read the University of Puget Sound's Academic Integrity policy (`http://www.pugetsound.edu/student-life/personal-safety/student-handbook/academic-handbook/academic-integrity/`) for further information.

Please do not put us, yourself, or anyone else in this unpleasant situation!

Academic Accommodations

Last but not least, if you have a physical, psychological, medical or learning disability that may impact your course work, please contact Peggy Perno, Director of the Office of Student Accessibility and Accommodations, Howarth 105, pperno@pugetsound.edu, 253.879.3395. She will determine with you what accommodations are necessary and appropriate. All information and documentation is confidential.

Let's have a great semester together!