

Course Home Page: <http://www.cs.pitt.edu/~kirk/cs1510/index.html>

Course Group Home Page: <http://groups.google.com/group/pitt-cs-1510-fall-2011>

This group should be used for questions of general interest. We need to know your user name, but the name doesn't have to reveal your identity. This group will be used for announcements. The course group is the best place to ask general questions (e.g. a question about a particular homework problem). This group will be monitored by the instructor and the TA, but often other students can provide a quicker answer than the TA or instructor.

Instructor: Kirk Pruhs

Office: 6415 Sennott Square

Phone: 624-8844

Email: [kirk@cs.pitt.edu](mailto:kirk@cs.pitt.edu) (Please use the course group for general questions about assignments, etc. )

Office hours: 2:00-3:00 Monday, Wednesday, Friday. But if you can catch me in my office anytime, I will be happy to talk algorithms with you if I don't have a pressing deadline.

TA: Daniel Cole

Office: Sennott Square 6406

Email: [dcc20@cs.pitt.edu](mailto:dcc20@cs.pitt.edu)

Office Hours: 1:00 - 2:30 Tuesdays and Thursdays

**Course Meeting:** The course will meet Mondays and Wednesdays 3:00-4:15 and Fridays 3:00-3:50 in 5129 Sennott Square. Thus we are meeting an extra 50 minutes per week (or equivalently 1/3 more time per week) than is normal for a 3 credit course. Because of this slightly accelerated rate, we will likely finish before the end of the semester.

**Text:** The official text is *Foundations of Algorithms* by Neapolitan and Naimipour. Any edition of the textbook is fine for this class. You are welcome to consult other texts if you prefer. Some other good texts are authored by: 1) Udi Manber, 2) Brassard and Bratley, 3) Cormen, Leiserson, Rivest, and Stein 4) Sara Baase, and 5) Kleinberg and Tardos. Many students don't find a textbook particularly useful. Disclaimer: If you choose to not follow the official text, then you may not later complain that you were disadvantaged because you opted not to use the official text.

**Prerequisites:** Technically CS 1501, and CS 1502. These will not be enforced. But be forewarned, if you take this class without these prerequisites, you forfeit your right to complain that the class is at an inappropriate level.

**Course Content:** The main goal of the course is to learn to think algorithmically like a "real" computer scientist. This course is different than CS 1501 in that we will be designing our own algorithms, as opposed to learning algorithms. Most class time will be devoted to examples of algorithm design for particularly interesting problems. There will be homework assignments due almost every class. It is expected that most of your learning will come from the process of solving the homework problems. Exams will in large part be based on the homework. We will cover the following topics in the following order:

Deciding the Correctness of Algorithms (Chapter 4)

Dynamic Programming (Chapter 3)

Reductions and NP-completeness (Chapter 9)

Parallel Algorithms (Chapter 10)

**Grading:** Grades will be based on homework, classroom participation, and two midterm exams. Homework will constitute 30% of the final grade. Each midterm exam will constitute 30% of the final grade. Attendance

will be taken and will count for 5% of the grade. Class participation will constitute the remaining 5% of the final grade. The first exam will cover greedy algorithms and dynamic programming. The second exam will cover reductions and parallel algorithms (and maybe dynamic programming). In the past, most students have found the course material quite challenging.

I will subjectively set the grading scale at the end of the semester. You are not in competition with other students. I have no set numbers of A's, B's etc. I strongly suggest you cooperate with each other to understand the material. This is in all students' best interests. If a student's homework scores are conspicuously/suspiciously higher than a student's exam grades, I reserve the right to base the course grade on only the exam scores, and classroom participation.

**Homework Policy:** You may do your homework in groups of 2 or 3 people if you wish. Each group need only provide one write-up. Write-ups must use  $\LaTeX$ , <http://en.wikipedia.org/wiki/LaTeX>. You may discuss problems with any student in the class with the proviso that you shouldn't feed others complete solutions, and you must acknowledge collaborations in the write-up. You may not seek solutions on the web, in other books, from friends outside the class, etc.

All homework is due at the start of class on the date due. No late homework is accepted. The homework will be graded by the TA. Homeworks will be graded on a 3 point scale, with 3 points meaning that the solution is basically correct (potentially modulo minor issues), with 1 point generally meaning that the approach taken is the correct approach, and no points generally meaning that the approach taken is quite errant. It will be extremely rare for a homework to earn 2 points. Any homework solution consisting of essentially only code or pseudo-code will automatically receive a grade of 0. The target audience for your homework write-ups should be fellow students who were not able to solve the problem. So your write-up should start with a written overview of the main ideas or concepts. Further, insufficient explanation is potentially justification for a grade of 1.

Many students will find some problems demanding. It is not expected that all students will be able to answer all the homework questions. At the minimum, I would expect each student to think hard about at least one problem on each assignment. If  $X$  problems are assigned in the semester, only the scores on the  $4X/5$  highest scoring problems will count toward the homework grade. The purpose of this policy, and the 0, 1 or 3 scoring policy, are to try incentivize students to try to solve a smaller number of problems fully correctly rather than trying to go for partial credit

**Exam Scoring Appeal Policy:** You may submit an appeal in writing if you believe that your solution for a problem on an exam is "essentially fully correct". No appeals are allowed for additional partial credit; Partial credit is too subjective. Appeals will not be accepted earlier than 1 class after the exams were returned, and will not be accepted later than 2 classes after the exams were returned. Of course any clerical errors can be corrected. Note that the problem will be regraded there is a possibility that the new grade will be lower than the original grade.

**Disability Policy:** If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructor and Disability Resources and Services, 216 William Pitt Union, (412) 648-7890/(412) 383-7355 (TTY), as early as possible in the term. DRS will verify your disability and determine reasonable accommodations for this course.

**Missing tests:** If you are going to miss a test for unavoidable reasons then before the exam (or as soon as possible) you must contact me. If this is not possible, contact the computer science departmental secretary at 624-8490.

**Cheating Policy:** I have no tolerance for cheating. If you are caught cheating, you will receive an F grade for the course.