Due to the dynamically changing nature and unpredictability of the COVID situation, everything on this syllabus should be considered tentative.

Course Home Page: `http://people.cs.pitt.edu/~kirk/cs1510/` (Mostly contains archival material and won't be extensively used)
Course Piazza Group: `piazza.com/pitt/fall2020/cs1510/home` 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 TA, but often other students can provide a quicker answer than the instructional staff.

Instructor: Kirk Pruhs
Office: 6415 Sennott Square
Phone: 624-8844
Email: kirk@cs.pitt.edu Please use the course Piazza group for questions of potential interest to other students. Please restrict the use of personal email to personal issues.
Office hours: Generally I'll hang out online after class until questions are answered or its lunch time.

TA: Alireza Samadian
Office: 6406 Sennott Square
Email: samadian@cs.pitt.edu
Office Hours: 2:00 PM to 3:00 PM Tuesdays and Thursdays

Course Meeting: The course will meet Mondays, Wednesdays and Fridays from 9:25-10:40 AM. Currently on Mondays and Fridays we are assigned to 152 Chevron Science Center and on Fridays we are assigned to A221 Langley Hall. But initially we will start meeting online, and monitor the situation.

Textbook: No required textbook.

Prerequisites: CS 1501, and CS 1502. If you take this class without these prerequisites, you forfeit any 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. In the past, many students have found the course to be challenging. Most class time will be devoted to understanding examples of algorithm design, for particularly interesting problems, using the Socratic method. There will be weekly homework assignments that give you an opportunity to practice developing your algorithmic design skills. Friday labs will primarily be devoted to working on these homeworks in random groups. It is expected that most of your learning will come from the process of solving the homework problems. We will cover the following topics in the following order:

- Deciding the Correctness of Algorithms /Greedy Algorithms
- Dynamic Programming
- Reductions and NP-completeness
- Parallel Algorithms

Grading: Grades will be based on primarily on homeworks and quizzes. Given the labor intensive nature of grading algorithm design homeworks, a pseudo-random sample of the homework assignments will be graded. There is no cumulative final exam.

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 master the content. This is in all students' best interests. Generally speaking, I usually don't give out a lot of A's because I think the top grade should represent solid mastery of the material. But I tend to be sympathetic in giving out C's if a student attends class regularly, participates fully in class, and consistently makes a good faith attempt on homework assignments. Additionally, I would expect a B student to do well on the homework. Additionally, I would expect an A student to do well on the quizzes.

Homework Policy: Multiple homeworks of various values will be assigned each week. We will use gradescope to distribute, collect and grade homeworks and quizzes. You may discuss and work on problems with any student in the class with the proviso that one student shouldn't just spoon feed another student a solution. You may not seek solutions to assigned problems on the web, in other books, from friends outside the class, etc. Although you may consult outside sources for general knowledge, e.g. for alternate explanations of dynamic programming. Each week you will writeup the solution to one problem of your choice individually. Write-ups must use LaTeX, `http://en.wikipedia.org/wiki/LaTeX`. If you do not have prior experience using LaTeX, I suggest you use Overleaf, `https://www.overleaf.com/`, to which Pitt students have professional accounts `https://www.overleaf.com/edu/pitt`. No late homeworks will be accepted.

Many students will find some problems demanding. It is not expected that all students will be able to solve all the homework questions.

Quiz Scoring Appeal Policy: You may submit an appeal in writing if you believe that your solution for a problem 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. The problem will be regraded by the TA. Note that there is a possibility that the new grade will be lower than the original grade.

Health and Well-being: One major goal of the course (and of all courses) is that you will have fun taking it and learning this new cool material, as much as we hope to have fun teaching it. Part of making sure you have fun involves taking care of yourself. Do your best to maintain a healthy lifestyle this semester by eating well, exercising, avoiding drugs and alcohol, getting enough sleep and taking some time to relax. This will help you achieve your goals and cope with stress. If you or anyone you know experiences any academic stress, difficult life events, or feelings like anxiety or depression, we strongly encourage you to seek support.

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 the Office of Disability Resources and Services, 140 William Pitt Union, at 412-648-7890 or 412-383-7355 (TTY) as early as possible, but no later than the fourth week of the term or visit the Office of Disability Resources website as early as possible, but no later than the 4th week of the term. DRS will verify your disability and determine reasonable accommodations for this course.

Cheating Policy: I have no tolerance for cheating. If you are caught cheating, you will receive an F grade for the course. Ignoring the ethics for a moment, purely from a pragmatic point of view, it doesn't make much sense to cheat within the context of the course. The risk/reward ratio is bad. I'm very forgiving in giving passing grades if a student is making a genuine effort. So cheating provides no real benefit to a student shooting for a passing grade. Further a student who does cheat will not learn the material, and will get killed on the quizzes. So cheating is also a bad strategy for a student trying to get a high grade. If you absolutely must cheat, at the very least, don't copy off of the solutions from previous years, from wikipedia, or from sources that Google search returns on the front page in response to the obvious queries. These are the first things that the TA checks. So just to be clear, the TA does know how to use Google search.