
Course Information

Course Staff	Room	Email	Office Hours
Prof. Adam Smith	IST 338K	asmith@cse.psu.edu	Wed. 1:00-3:00pm
T.A. Xingjie Liu		xzl106@psu.edu	TBD

Lectures MWF 11:15-12:05pm, Osmond Building, Room 109.

Webpage <http://www.cse.psu.edu/~asmith/cse565/> Check it often.

Angel: <http://cms.psu.edu/> Make sure you read Angel mail often.

Syllabus Classical algorithms; techniques for the design and analysis of efficient algorithms. Topics include graph algorithms; divide-and-conquer algorithms and recurrences; dynamic programming; greedy algorithms; amortized analysis; network flow; randomized and approximation algorithms; parallel algorithms; non-determinism and NP-completeness.

Prerequisite An undergraduate level course in algorithms and data structures, such as CSE 465.

This is not an introductory course. Students who have not previously taken an algorithms class should take CSE 465 instead. You should also be comfortable reading and writing mathematical proofs.

Background Survey and Photograph The Angel page for this course contains a short survey on your background, goals, and knowledge. One of the survey's requirements is that you post a *recognizable* photo of yourself on your Angel account. This helps us get to know you.

Please complete the survey by Friday, August 29 (or within a week of enrolling in the course, whichever is later). The survey counts as your first assignment.

Textbook Jon Kleinberg and Éva Tardos, *Algorithm Design*, Addison-Wesley, 2005.

A useful (but not required) reference for background material is: Cormen, Leiserson, Rivest and Stein, *Introduction to Algorithms*, MIT Press, 2001.

Evaluation The grade will be calculated as follows:

Weekly homework	40%	
Midterm exam 1	20%	(Tue, Sep. 30, 8:15pm)
Midterm exam 2	20%	(Tue, Nov. 18, 8:15pm)
Final exam	20%	(t.b.d.)

Homework There will be weekly problem sets, due **Fridays before the beginning of class**. Late homework will generally not be accepted. If there are extenuating circumstances, you should make arrangements at least 48 hours in advance with the instructor. Only serious excuses will be considered in cases where prior arrangements were not made.

You should be as clear and concise as possible in your write-up of solutions. Understandability of your answer is as desirable as correctness, because communication of technical material is

an important skill. A simple, direct analysis is worth more points than a convoluted one, both because it is simpler and less prone to error and because it is easier to read and understand. Points may be subtracted for illegible handwriting and for solutions that are too long.

Programming Assignments Some of the problems on the problem set may take the form of programming assignments. Details of language and platform will be provided closer to the assignments' due date.

“I’ll take 20%” option Partial credit is only given for answers that make significant progress towards correct solution. Understanding whether a solution is correct is an important skill. If you realize that you cannot solve a problem, you have an option of writing “I’ll take 20%” instead of your answer. In this case, you will get 20% for this problem (or part of the problem). If you do write an answer, that answer will be graded and your score will be 0 if your solution is completely wrong. You cannot use the 20% option on programming problems.

Optional problems Some homework assignments will include optional problems, marked by ?. Later, if you ask me for a recommendation or express an interest in working on a research project with me, I will definitely check how well you did on the optional problems. “I go for 20% option” is not available for optional problems.

Partial Grading Homework assignments will each consist of several problems. We will provide solutions to *all* problems but will only grade a subset of the problems (not known to you in advance). You are welcome to ask for feedback on ungraded solutions after you have read the official solutions. All optional problems will be graded.

Collaboration and Honesty Policy Collaboration on homework problems, with the exception of programming assignments, is permitted, but not encouraged. If you choose to collaborate on some problems, you are allowed to discuss each problem with at most 3 other students currently enrolled in the class. Before working with others on a problem, you should think about it yourself for at least an hour. Finding answers to problems on the Web or from other outside sources (these include anyone not enrolled in the class) is strictly forbidden.

You must write up each problem solution by yourself without assistance, even if you collaborate with others to solve the problem. You must also identify your collaborators. If you did not work with anyone, you should write “Collaborators: none.” It is a violation of this policy to submit a problem solution that you cannot orally explain to an instructor or TA.

No collaboration whatsoever is permitted on exams or quizzes.

Violations of this policy will be dealt with according to University regulations.