Course Information — Fall 2016

Course Staff	Room	Email id	Office Hours
Prof. Sofya Raskhodnikova	IST 343F	sxr48	MW 4:30-5:30pm
Nithin Varma (TA)	IST 359	nzm154	Th. 3:30pm-5:30pm

Lectures MW 2:30-3:45pm, Sackett Bldg 319

Webpage `http://www.cse.psu.edu/~sofya/cse565/`
Check it for the record of what we covered, handouts, homework assignments, slides, etc.

Canvas: `http://www.canvas.psu.edu` We will use it for surveys, reading quizzes, collecting HW, posting solutions and grades. **Forward announcements to your usual inbox.**

Questions and class discussion on Piazza: `https://piazza.com/psu/fall2016/cse565`.
Rather than emailing questions to the teaching staff, please post them on Piazza. Students who ask the largest number of good questions or give the largest number of helpful answers will get **bonus points** at the end of the course. There is an option to ask questions anonymously or only make it visible to instructors. Do not share your insights into homework problems when you ask public questions. However, make all nonsensitive questions public, so that others can benefit from the answers. **Forward announcements to your usual inbox.**

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.

Syllabus Classical algorithms; techniques for the design and analysis of efficient algorithms. Topics include a review of basic design techniques (divide-and-conquer, greedy, dynamic programming); graph algorithms; amortized analysis; network flow; linear programming; NP-completeness; randomized algorithms; local search; approximation algorithms.

Prerequisites and co-requisites You must have taken undergraduate courses on discrete math (equivalent to CMPSC 360) and data structures and algorithms (equivalent to CMPSC 465). An undergraduate course on theory of computation (equivalent to CMPSC 464), should be taken before or concurrently with this course. You must also be comfortable with reading and writing mathematical proofs.

This is not an introductory course. Students who have not previously taken a rigorous algorithms class should take CMPSC 465 instead.

Background Survey The Canvas page for this course contains a survey on your background, goals, and knowledge. Complete the survey by **Tuesday, August 23** (or within two days of enrolling in the course, whichever is later). The survey counts as your first HW assignment.

Evaluation The grade will be calculated as follows:

Weekly homework and reading quizzes	35%
Midterm exam 1	20%
Midterm exam 2	20%
Final exam	20%
Class participation (includes Piazza bonus)	5%

Reading quizzes For some topics, there will be short reading quizzes, automatically graded by Canvas, due **at midnight on the day before the lecture**. I will use the results from the reading quizzes to judge how much time we need to spend on the material you reviewed at home. The first reading quiz is **due on Tuesday, August 23**.

Homework There will be weekly assignments, due **on Thursdays at midnight** on **Canvas**.

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.

Programming Assignments Some homework problems may take the form of programming assignments. Details of language/platform will be provided closer to the assignments' due date.

"I'll take 15%" option for HW problems Partial credit will be 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 15%" instead of your answer. In this case, you will get 15% 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 15% option on programming problems, quizzes, or on exams.

Exercises Homework assignments will include exercises that should be solved, but not submitted. These questions are intended to help you master the course material and will sometimes be useful for solving the assigned problems. Material covered in exercises will be tested on exams.

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'll take 15%" is not available for optional problems.

Partial Grading Each homework will 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 and reading quizzes, is permitted, but not encouraged. You must read and sign Collaboration and Honesty Policy, and hand it to the TA before the first HW is due. Please keep a copy for your records.

No collaboration whatsoever is permitted on optional problems, quizzes, and exams.