1 Times and Locations

- Lectures: Tuesday and Thursday 2:30pm–3:50pm in Frey Hall 313.
- Office Hours: Tuesdays 1-2:30pm and Thursdays 4pm-5:30pm.
- TAs: TBA <tba@tba>.
- TAs’ Office Hours: TBA.

2 What This Course is About

Goals of Class

- Learn an underlying set of algorithmic techniques.
- Learn how to model computational problems appearing in programming, computer science, and theory.
- Learn how to design algorithms having performance guarantees.
- Learn how to write proofs of correctness.
- Appreciate beauty in algorithms and how it applies to daily life.
- Particular focus:
  - Theory that is useful to both theoreticians and system builders.
  - Data structures and big data.
  - Randomization.

3 How to Do Well in This Class

- Study. This is advanced material, which requires effort to digest.
- Do all the problem sets seriously.
- Go over lectures and lecture photos several times. (E.g., recopy your notes.)
- Best way to study for exams: Redo all the old problem sets and old exams from scratch.
- Work with a partner. Work in a group.
• Don’t get lost. If you are having trouble or falling behind, please come see me.
• Come to office hours.
• Start the homework early.
• When you don’t understand something, ask questions in class—to me, not your neighbor.

4 Prerequisites
• Mathematical maturity.
• Some programming background/undergraduate algorithms class.

5 Requirements
• One final.
• One midterm.
• 5-7 problem sets. (Every 1-2 weeks.)
• Practice problems.

6 Problem Sets
• Do problem sets in latex.
• Put an example/picture for each problem.
• Hand in both the PDF and a tarball/zipfile of the source. Hand in problem sets electronically. If the TA also wants hard copies, then please submit these as well.
• It is your responsibility to keep copies of all work that you hand in.
• Late assignments will not be accepted.
• If you work with people or have any other sources (I’m not sure what they could be), you must cite them.

7 Practice Problems
• These are extra examples based on each lecture. The point is to give extra examples to work through, so that if you understand the examples, then you know that you understand the lecture. After each lecture, we can spend class time trying to come up with these problems together. I’ll probably ask that you do them and hand them in about a week after each lecture. If the class likes these problems, we can find more of them. If not, we will have fewer of them.
Problem-Solving Procedures on Homework

- Cite everyone that you work with.
- You must write up all your solutions yourself.
- You can share ideas, but it is academically dishonest to share any part of your writeup.
- It is academically dishonest to get your solution from any other student’s writeup.
- Don’t try to Google solutions. It’s not worth it. You may obtain the answer but you won’t learn very much. You will get seriously burned if you are caught plagiarizing.
- For more details, see the assignment on academic dishonesty.

8 Camera

- We’ll take photos of everything I write on the chalkboard. Then I’ll post on Blackboard.
- Some days I’ll forget my camera. If you have a camera, please bring it to serve as a backup. I’ll be grateful.

9 Grading

- Homework, attendance, practice problems, and participation will be worth approximately 15% of the grade, the midterm will be worth approximately 35% of your grade, and final will be worth approximately 50% of your grade. I reserve the right to adjust this formula for generating raw scores by a small amount (e.g., 5%-7%).
- You get 25% of any question in an exam by saying “I don’t know.”

10 Dates

- One possible date for the midterm is Thursday, October 11, 2018. The advantage of this date is that it’s before most of your other midterms. We will discuss other possibilities in class—including much later dates.
- The final exam schedule is here: http://www.stonybrook.edu/commcms/registrar/registration/exams.php. According to this website, our exam takes place on Tuesday, December 18, 2018 from 11:15am–1:45pm.
- Here are various academic calendars: http://www.stonybrook.edu/commcms/registrar/calendars/academic_calendars.
11 Books

There is no single textbook for this course. Recommended textbooks include:

- Algorithm Design by Jon Kleinberg and Éva Tardos.
- The Algorithm Design Manual by Steven S Skiena.
- MIT Open Courseware Introduction to Algorithms 6.046J/18.401J.
- Scribe notes from previous years I taught the course.

12 Scribing

If students want to scribe lectures in latex, please let me know. You will get some extra credit for the scribing, but not enough to make it worthwhile just for the grade. It’s worthwhile because of the experience doing technical writing.

If multiple students scribe the same lecture, then just the best set of scribe notes gets extra credit.

13 Academic Integrity

Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person’s work as your own is always wrong. Faculty is required to report any suspected instances of academic dishonesty to the Academic Judiciary. Faculty in the Health Sciences Center (School of Health Technology & Management, Nursing, Social Welfare, Dental Medicine) and School of Medicine are required to follow their school-specific procedures. For more comprehensive information on academic integrity, including categories of academic dishonesty please refer to the academic judiciary website at: http://www.stonybrook.edu/commcms/academic_integrity/.

I take academic honesty very seriously. Infractions have serious consequences. It is your responsibility to ensure that you understand what constitutes academic dishonesty.

See the academic honesty assignment for more details.

14 Americans with Disabilities Act

If you have a physical, psychological, medical or learning disability that may impact your course work, please contact Student Accessibility Support Center, ECC (Educational Communications Center) Building, Room 128, (631) 632-6748. They will determine with you what accommodations, if any, are necessary and appropriate. All information and documentation is confidential.
Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and Student Accessibility Support Center. For procedures and information go to the following website: http://www.stonybrook.edu/ehs/fire/disabilities.