1 Times and Locations

- Lectures: Monday and Friday 1:00 pm–2:20 pm in NCS 115.
- Recitation: Monday 12:00 pm–12:53 pm in NCS 115.
- Office hours: Monday 2:45pm-4:30.
- TA: Yuren Huang <yurhuang@cs.stonybrook.edu>.
  Undergrad TA: Yiou Chen <yurhuang@cs.stonybrook.edu>.
- TAs' Office Hours: Thursday 2:30 - 4:00 PM.
  Wednesday 11:30 AM - 1:00 PM.

2 What This Course is About

Motivating Questions

- What is computation?
- What makes something a computer?

Primary Goal of Class

Develop a theory out of the idea of computation that is

- clean and simple,
- mathematically rigorous, and
- general.

Secondary Goals of Class

- Develop a deeper idea of what CS is all about.
  - Hint: it’s not this: “Oh you’re a computer scientist. Can you help me with Microsoft Word and fix my computer?”

- Help you think rigorously when you go out in the field and begin programming.
  - Story from a former student: At the time he thought that Theory of Computation was just theory. But he found he was using it all the time in the field.
• Improve mathematical skills.

• Learn the beautiful theoretical ideas that form the foundation of computer science.
  – While the particular programming language in another of your classes will be outdated,
    What you learned in CSE 350 always be true and relevant.

• Give advice about other aspects about how to succeed as a computer scientist, student, and
  researcher.

Course Objectives

• Introduce abstract models of computation such as finite and push-down automata, and ana-
  lyze their relative expressive power.

• Explore the connection between abstract machine models and formal languages, as specified
  by grammars.

• Enhance students awareness of both the power and inherent limitations of algorithmic com-
  putation via the study of Turing machines and/or other abstract computational models.

• Enable students to apply languages and automata to solve problems in applied computer
  science.

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.)

6 Problem Sets

• Do problem sets in latex.
• Give an example/picture for each problem.
• Hand in both the PDF and a tarball of the source on blackboard.
• I may ask you also to submit hard copies, depending on how the TA chooses to grade.
• Please 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, you must cite them.

Problem-Solving Procedures on Homework

• Cite whom you work with.
• You must write up all your solutions yourself.
• You can share ideas, but it is plagiarism to share any part of your writeup.
• It is plagiarism to get your solution from any other student’s writeup.
• Don’t try to Google solutions. It’s not worth it. Figure it out your solution yourself (or with your homework partners). If you can’t, then leave the question blank. This is a class where you learn how to solve problems yourself, not surf the web.

7 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.
8 Grading

- Homework 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. (If we don’t get good grading support, I’ll adjust this formula a little more.)
- You get 25% of any question in an exam by saying I don’t know.

9 Dates

- Two tentative dates for the midterm are Monday, March 28, 2016 or Monday April 11, 2016. (Please let me know when your other exams are so we can avoid as many conflicts as possible.)
- The final exam takes place on Tuesday, May 17, 2016 from 2:15–5:00 PM according to the Stony Brook final examination schedule in a location TBA. See http://www.stonybrook.edu/registrar-finals.shtml.

10 Books

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

- Elements of the Theory of Computation by Harry R. Lewis and Christopher Papadimitriou.

You can also look at other online courses for extra learning material. If you see something that you particularly like, please let me and the rest of the class know.

11 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 are 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/uaa/academicjudiciary/.

- I take academic honesty very seriously.
- It is your responsibility to ensure that you understand what constitutes academic dishonesty.
- It is academically dishonest to hand in a solution that you don’t understand.
- See the academic integrity assignment for more details and more explanation.
12 Americans with Disabilities Act

If you have a physical, psychological, medical or learning disability that may impact your course work, please contact Disability Support Services, 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.

13 Critical Incident Management

Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of Judicial Affairs any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students’ ability to learn. Faculty in the HSC Schools and the School of Medicine are required to follow their school-specific procedures.

Further information about most academic matters can be found in the Undergraduate Bulletin, the Undergraduate Class Schedule, and the Faculty-Employee Handbook. If you have any questions, please contact Donna Di Donato in the Office of Undergraduate Academic Affairs (2-7080).

14 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.