1 Overview

- Class introductions
- Administrative junk
- Class goals and my personal goals
- Sample problems

2 Class Introduction

Times and Locations

- Lectures: Monday and Friday 1:00pm–2:20pm in Javits 102.
- MAB’s Office hours: Monday and Friday 2:30pm-4pm.
- TA list:
  - Nolan Donoghue (nolan.donoghue@stonybrook.edu). Office Hours: 11am-12pm Monday Staller 3218
  - Bridger Hahn (Bridger.Hahn@stonybrook.edu). Office Hours: 1pm-2pm Wednesday Hum 3008
  - Helen Xu (Helen.Xu@stonybrook.edu). Office Hours: 10am-11am Monday Frey 316
  - Xin Qi (xinqi@cs.stonybrook.edu).
  - Xue Li (xue.li@stonybrook.edu).

Topics

- Propositional Logic
- Predicate Calculus
- Introductory Set Theory
- Relations and Functions
- Cardinalities
- Proof Techniques and Strategies
- Basic Graph Theory
Course Outcomes

- An ability to compute with recursion as a basic paradigm.
- An ability to define and use discrete structures such as functions, relations, and sets.
- An ability to use logic and basic proof techniques, such as mathematical induction.

Course Objectives

- Provide students with a rigorous introduction to proof techniques including propositional logic and mathematical induction.
- Introduce recursion as a basic paradigm for computing with functions.
- Introduce fundamental discrete structures such as functions, graphs, and trees.
- Build a strong theoretical foundation for subsequent courses in the CS curriculum.
- Help you appreciate the theoretical foundations underlying all of CS.
- Make you smarter.

My Personal Objectives

- Make your introduction to SBU smooth.
- Introduce life skills.
  - How to become an A student (in college as well as high school).
  - How to study for classes efficiently.
  - How to understand what’s going on in a professor’s head.
  - How to do technical writing.
  - How to give effective presentations.
  - How to approach research.

Requirements and Grading

Subject to tweaks throughout the semester.

- Class participation (including attendance and quizzes) (10%)
- Problem sets (20%).
- Midterm exam (30%).
- Final exam (40%).
Course Materials

- The online book *Mathematics for Computer Science* by Eric Lehman and Tom Leighton is an alternative textbook. This book is available for download on blackboard.
- I will also be following some lectures from the MIT course 6.042J / 18.062J Mathematics for Computer Science from Spring 2005. (See [http://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-042j-mathematics-for-computer-science-spring-2005/](http://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-042j-mathematics-for-computer-science-spring-2005/)). The notes are also available for download on blackboard.

How to Do Well in This Class

- Study. This is nontrivial 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.)
- Work with with a partner. Work in a group.
- Spend effort teaching your classmates. The best way to learn a subject is to teach it.
- To study for exams: Redo all the old problem sets and old exams. Solve the problems *again on paper* without looking at your earlier solutions; don’t just redo the problems in your head.
- To study for exams: Try to make up your own midterm and final. This is difficult (for me too) but afterwards you know your stuff.
- Ask questions in class.
  - Do not be afraid of questions that seem naïve.
  - If you want me to repeat something that I just explained, just ask.
  - If you are lost and don’t know what to ask, just say so.
- Come to office hours *even if you don’t have questions to ask.*
- Start the homework early.
- Expect to spend about 20 hours per week outside of class on this course! There are challenging hws and exams. You will learn a lot. But if you don’t that the time or mathematical background yet to take CSE 215, don’t take it.

Prerequisites

- Mathematical maturity.
- No previous programming required. I don’t care how much background you have. It won’t have any impact on your ability to excel (e.g., earn an A) in this class.
Problem Sets

- Cite all your sources, i.e., the people you worked with, websites or books you used, etc.
- Work with others. Cite whom you work with.
- Put an example/picture for each problem.
- Late assignments will not be accepted.

Camera

- We’ll take photos of everything I write on the chalkboard. Then I’ll upload to blackboard.
- Please remember to bring your own camera, because I’ll forget mine periodically.

Dates

- Midterm: We will have the midterm on April 10, 2015.
- Final: According to http://www.stonybrook.edu/registrar/finals.shtml, the scheduled time for our final is Tuesday, May 19, 2015 from 2:15pm–5:00pm in a location TBA.

3 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. Infractions have serious consequences.
- It is your responsibility to ensure that you understand what constitutes academic dishonesty.
- Representing another person’s work as your own is always wrong. It is wrong in this course. It is wrong in your profession. It is wrong in life. It is wrong. Period.
- Always cite! If you work with multiple people, cite with whom you worked.
- Copying (or approximately copying) a solution from the web or someone else’s solution and putting in your problem set is plagiarism (even if you cite).
- Sharing any part of your write-up (latex, PDF, postscript, figures, or hard copy) before the assignment due date is academic dishonesty and invites plagiarism. Your own write-up is private information and should not be shared before submission.
• You will be able to find solutions to some of the homework problems on the web or from more senior students. It is academic dishonesty to search for and use such solutions in preparing your own write-up for the assignment, and it is plagiarism to copy such solutions and to submit as your own.

• You can work together to solve problems, but you must write up your own solutions, writing only those ideas and answers that you personally fully understand, and stating in your write-up with whom you worked to obtain the solution.

• It is academically dishonest to hand in a solution that you don’t understand.

4 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.

5 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).

6 Scribing

If students want to scribe lectures in latex, please let me know. You will get some extra credit for the scribing. If multiple students scribe the same lecture, then just the best set of scribe notes gets extra credit.