CS303E: Elements of Computers and Programming

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Who am I?

Instructor: Alison N. Norman, Ph.D.

- Education
  - Undergrad in CS from Georgia Tech
  - MS and Ph.D. in CS from UT Austin
- Family
  - Married with two children and two dogs

Today's Plan

- Introduce Computer Science
- Discuss course content and procedures
- Discuss how to succeed in this course

What is Computer Science?

- Many different things
- Includes topics that study:
  - How to make computers more powerful
  - How to use computers to solve problems
- Sample topics:
  - Robotics, Software Engineering, Computer Architecture, Graphics

Why Computer Science?

- Computing is pervasive
  - Phones, GPS, medical devices, air-traffic control systems, NASA, internet
- Computing helps society
  - Drug development, hurricane tracking, climate change, rescue robots
- Computing entertains us
  - Video games, chatting, online shopping

Computers are incredibly fast, accurate, and stupid.
Human beings are incredibly slow, inaccurate, and brilliant.
Together, they are powerful beyond imagination.

--Unknown (not Albert Einstein)

In this course…

- You'll learn how to access some of that power
- Learn how to solve problems and implement solutions on the computer
  - By programming the computer
  - In the Python programming language, but…
  - Learning the concepts and precision necessary to communicate with the computer is the main goal
  - That knowledge will transfer to other languages
- We'll also learn about basic computer organization

This course assumes *no* prior programming knowledge.

Course Staff

- Instructor: Alison N. Norman
  - Teach lecture, hold office hours, …
- TA: Quan Leng
  - Teach discussion sections, maintain grades, grade, hold office hours

Class Format

- Lectures MWF 11:30a-1p
  - Introduce concepts, many examples, questions welcome
- Discussions Sections on Tuesday with TA
  - Quizzes, more explanation, lots of question and answer, general help
  - Required
- No open laptops or other electronic devices

Class Materials

- Website: Go to place for information
  - Syllabus, Schedule, Assignments, Discussion sections, Useful links, Feedback form
  - You are responsible!
- Textbook: *Python Programming: An Introduction to Computer Science* by Zelle
- Piazza: discussion board
- Blackboard: grade center
- iClicker: class participation counts, get one and get it registered!

Course Workload

- To learn to communicate with a computer, you MUST practice
  - Most learning is outside of class time
- Fairly heavy time requirement
  - Weekly readings, programming assignments, and quizzes
  - Three in-class exams
- What does that mean?
  - 6 hours/week of studying
  - 12 hours/week of programming
    - 2,000 lines of Python code this semester

Evaluation

- Grades are calculated out of 1000 points
- Some "slack" points are built in

Evaluation

- iClicker participation (75 points)
  - Questions will be asked in lecture (register!)
  - 3 points per day (today not included)
- Quizzes in discussion section (100 points)
  - Graded on a 10 point scale; many of those points based on attempt
- Weekly programming assignment (140 points)
  - Homework
  - 7 worth 20 points
- Three in-class exams (210, 210, 285 points)

Evaluation

- iClicker, quizzes, and assignments are capped at 285 points
- 315 points available
- Allows for "life occurrences"
  - Missed discussion sections, classes, etc.
- Extra points do NOT spill over to exams

Assignment How-To

- Assignments are posted on website
  - Handout for first assignment only
- Follow coding standards on website
  - We'll go over these on Monday

Assignment Policies

- How to turn in and required file format also on website
  - NAMING is IMPORTANT
- Assignments must be done alone unless I tell you otherwise
  - Discussion of ideas is okay; Sharing solution code is cheating (F)
  - Solution similarity monitored with software
  - Later in the semester, we'll do some pair programming

Submitting an Assignment

- Submit your assignment using *turnin*
  - A website where you submit your assignment
  - Can be accessed from any computer
- May upload your file as many times as you like, the last file uploaded will be graded
- You must get a CS account to turn in the assignment
  - See website for details
  - Apply by TODAY at 5p

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Before You Can Get Your CS Account

- You must be present in the class on Blackboard
- Blackboard receives updates from the registrar each night
  - If you change you registration, you must wait until the next day for Blackboard to update
- Turnin also updates automatically from the registrar
  - Takes longer, may be a few days

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Assignment Advice

Assignments are released on Friday so that you can:

- Work on the assignment over the weekend and on Monday
- Ask questions at Tuesday's discussion section
- Get emergency help in the labs on Wednesday and Thursday

So... Start Early!

Assignment Grading

- Programs that do not load in the lab receive a 0.
  - You can always get it to load by commenting out the problem
  - (We'll discuss what all this means.)
- Programs that are late receive a 0.
  - Except for slip days
  - 4 for the semester---Use them wisely!
- Programs that are named incorrectly (even a little bit) receive a 0.
- Grades on Blackboard

You have one week from the time we *first attempt* to return any assignment or exam to request a grade correction.

Labs

- Locations where you can work on your assignment
- CS Elements Lab in PAI 5.38
  - All office hours are held here
  - Other labs are ENS 1 and 2
- Need your CS account to log in
  - Takes 3-5 days after you request it
  - Notification IF you put in a forwarding address
- Software is available on these machines

More Lab Information

- PAI 5.38S (the big part) has machines that are *both* Unix and Windows.
- Your account will only work with Windows
- To switch, press the silver button on the little black box.

Lab vs. Discussion Section

- *Lab:* Room with computers where you may go to complete assignments. Office Hours are held here.
  - CS account needed to access computers
- *Discussion Section*: Small section with your TA. Takes place in a classroom setting. You may ask questions about assignments here.

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Cheating

- Don't do it
- All work must be completed individually unless otherwise noted
- Plagiarism detection software will be used to find similar solutions
- Materials on the web should not be used in your code

Cheating

- Do NOT email your code to another student
- Do NOT write code (on paper, in an email, etc) for another student
- Do NOT describe variable manipulations

Cheating

The penalty for cheating is an F in the course and a referral to the Dean of Students office.

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What IS allowed

- High-level discussion of algorithms
- Explanation of concepts
- Working practice sets together
- On specific assignments, pair programming

Schedule

- Front-loaded
  - Very important to keep up in the beginning
  - 1st 4 weeks lays foundation for the rest
  - If you *suspect* you might be confused, talk to someone
- Located on the website
  - Includes lecture topics, assignments and due dates, discussion section topics, practice problem sets
  - Slides used in-class will be posted here a day or two before lecture
    - Will not include in-class examples

How to Succeed

- Program, program, program
  - Do the exercises, re-work examples
- Ask questions
  - No such thing as a dumb question
  - If you want to know, at least one of your classmates does too
- Come to class. Pay attention. Participate.
- Study regularly
- Follow directions
- Get to know your classmates

Any questions?