CS 161
Introduction to CS I

• What this class offers you
• What your responsibilities are
• How to communicate with computers
MLIS in Library and Information Science

M.S. in Geology

Airplane pilot

1/6/2020

CS 161
About you

• First year at OSU?
• First quarter at OSU?
• Prior experience with programming?
• Prior experience with C++?
Start with why

• Why are you here?
  – Build apps, games, simulations, robotics, biology, AI, ML, ...
  – What can computer scientists do to improve the world?
How do you become a computer scientist?

• Technical skills: use of tools
  – Programming
  – Testing
  – Debugging

• Conceptual skills: logic and creativity
  – Problem solving
  – Algorithm design
  – Analysis – efficiency, ease of use, what is computable?
Course map

Basics
Storing data, calculations, interacting with users

Decision making (adaptation) and repetition (write once, repeat forever!)

Divide and conquer part 2 (recursion)

Structured data (arrays)

Divide and conquer (modularization and code re-use in functions)

Dynamic growth (memory allocation and management)

1/6/2020 CS 161
Visit the course website

http://classes.engr.oregonstate.edu/eecs/winter2020/cs161-020/

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### Important Dates:

- 01/06 - First day of class
- 01/12 - Last day to Add a class without dept. approval
- 01/12 - Last day to Drop a class for 100% refund
- 01/20 - Martin Luther King, Jr. Day (No School)
- 03/16 - Final Exam, 6-7:50 p.m. in LINC 228

### Instructor: Dr. Kiri Wagstaff

2079 Kelley Engineering Center  
kiri.wagstaff@oregonstate.edu  
(541) 737-9676

Office Hours (2079 KEC): **Mon 4 - 5 p.m. and Weds 3 - 4 p.m.**

**Graduate TAs: Sabrina Jesmin and Yipeng (Roger) Song**

jesmins@oregonstate.edu and soneyin@oregonstate.edu

Office Hours: See Below
Syllabus highlights (1)

• You are responsible for following all course policies and info in the syllabus.
• Attend lecture. Missed in-class work cannot be made up.
  – Check the calendar for assigned readings and assignment due dates
  – Silence cell phones in class
• Attend lab: your chance to get hands-on practice!
  – Lab activities cannot be made up without prior approval
  – Jan. 20 – attend another lab or complete outside lab (checked off on Jan. 27)
• Assignments: Sign up to demo your work within 2 weeks after due date
  (earlier is to your advantage)
  – Submitted code must compile (else 0 grade for coding part).
    Comment out or remove any parts that prevent compilation (for partial credit).
  – Take notes during demo. Write up ideas for improvements = extra credit.
Syllabus highlights (2)

- Course grade:
  - 40% - 5 assignments
  - 10% - 10 labs
  - 10% - designs + peer reviews
  - 30% - 2 midterm exams
  - 10% - final exam (cumulative)

- Proficiency demo (week 10)
  - Must pass to maintain a passing grade in the class
  - Practice demo in week 5 so you know what to expect
Syllabus highlights (3)

• Getting help: Re-read assignment, textbook, Piazza, TAs, instructor, tutors
  – See guidelines on Email Etiquette
  – My office hours: Mon 4-5 p.m. and W 3-4 p.m., KEC 2079

• Course buddies
  – Strength in numbers!
  – Growth mindset: we are all learning and can help each other
  – Understand when to collaborate/consult and when to work solo
Guest speaker: Casey Patterson

- OSU COE Student Success Coordinator
  - Use free tutoring hours: https://engineering.oregonstate.edu/current-students/academic-support/undergraduate-tutoring
    • Link available on our course website on the “Useful Links” tab, under “Need help?”
  - OSU has a process for handling academic misconduct
    • Be familiar with student code of conduct to know what is allowed
    • In this class: you can discuss problems, assignments, ideas, but all code and written answers you submit should be your own
Houses

Charles Babbage

Ada Lovelace

Alan Turing

Grace Hopper

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CS 161
Computers in our lives

• How many are in this room?
• They’re also in space and on other planets
Computers in our lives

• What is a computer?

1954

Computer
(a person’s job)

Calculator
Computers in our lives

• What is a computer?
  – “Computer: an electronic device for storing and processing data, typically in binary form, according to instructions given to it in a variable program.” (Oxford)
Communicating with computers

- Not there yet: https://youtu.be/LkqiDu1BQXY?t=64

- Think about this class as a foreign language class
- What strategies work for you when learning a foreign language?
What ideas and skills did we learn today?

• Approach learning to program like learning a foreign language
  – Practice is your most powerful tactic!
• Programming process
• Tools: editor, compiler (later: debugger)
• Submit your own work. Ask for help from course staff anytime!
  – Piazza discussions, TAs, instructor, tutors
How to succeed in this class

• Start with why
• Get lots of practice writing your own programs
  – You are your own best teacher. Experience makes the best programmers.
• If your lab is early in the week, read ahead in Rao to prepare for lab.
• If your lab is late in the week, read the lab in advance and practice on your own so you are prepared for assignments.
• Use office hours. If something isn’t clear, ask questions.
• Use tutoring hours (get extra credit!)
• Be proactive (e.g., accommodate absences, other issues early)
• Take good care of yourself: sleep, food, exercise, breaks
You are ready for week 1!

- Attend and complete lab (laptop required)
- Read Rao Lesson 1 (pp. 1-15) and Lesson 2 (pp. 17-29)
- Try Rao Exercise 2.1 (p. 29) – answers at the back of the book
- Get started on Assignment 1 (due Sunday, Jan. 12)
  – Don’t wait until your lab to start working on it. Reading, designing, thinking, and planning do not require access to an editor or compiler.

See you Wednesday for more adventures!

- Bring: the number of light switches in your home
- Bring: scratch paper and writing utensil

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