Welcome to Computer Science

Department of Computer Science
University of Colorado Boulder
Excellent Time to be in CS

- Demand for CS skills is strong
  - Bureau of Labor Statistics projected that computer science occupations will be responsible for nearly 60% of all job growth in all science and engineering occupations between 2008 and 2018
  - The next highest contributor to growth was “all other Engineering disciplines” combined!
  - Computer science is one of the more recession-proof graduate job options, according to the Computing Research Association
Average Salary across all categories: 71.5K
But it’s not just jobs

There are some really exciting things going on in Computer Science right now!!
Example: System of Systems
Two satellites, three hardware systems; all run by software on a 14 minute time delay!
Performed a live upgrade of the entire operating software
New Ways To Interact With Reality

Speech Recognition, Augmented Reality, Text Recognition all bring computers to us – exciting opportunities
New Ways of Using Computers

speech, touch, gesture, image, brain waves
Smart glasses make hands-free 'Pokémon Go' a reality

'Pokémon Go' and augmented reality glasses are a match made in heaven.

'Pokémon Go' Evolution Optimization Tip: How To Use IV Calculator

Granite Mountain Hotshots memorial is one of many 'Pokémon Go' hotspots

In Old New Castle, tension over Pokémon Go
Department

- Founded in 1970; Joined Engineering College in 1981
- Offers BA, BS, BS/MS, MS, ME and PhD degrees
- 300+ grad students, >1200 undergrad majors
- 35 faculty members specializing in
  - SE, OS, networks, sensors, NA, scientific computation, bioinformatics, HCI, digital libraries, crisis informatics, machine learning, robotics, hypermedia/web and more…
- ~3000 alumni; 9 Distinguished Engineering Alumni
Undergraduate Community

- Computer Science Undergraduate Advisory Committee
- ACM Student Chapter
- Game Developers Club
- Women in Computing
- Ethical Hacking
- ACM Cluster Challenge Group
Innovative Education in CS

• Our department has the breadth and depth to give you an excellent foundation in
  • core technical skills
  • as well as an understanding of how computing technology (hardware and software)
  • fits into the world at large
• Computer science is no longer “just about programming,” it’s much broader than that!
Outcome-Based Curriculum

- Our program has Core course options so you can choose the career you want

- Interested in networks?
  - Take the Network and Systems courses

- Want to evaluate a system’s impact on it’s work environment?
  - Take the Human-Centered Computing courses
Suggested Plans of Study

Our program has Core course options so you can choose the career you want

You can select 6 Core courses and 2-3 Computer Science elective courses from any of these areas.

• Computational Science and Engineering
• Human-Centered Computing
• Networked Devices and Systems
• Software Engineering
• Systems

Course lists for each Suggested Plan of Study can be found at:

http://www.colorado.edu/cs/bs-degree/suggested-plans-study
Computer Science B.S. Degree Requirements Flow Chart: 2016-2017

Check course catalog for prerequisites

**Foundation**
- all courses required (24 hours)
  - CSCI 1000-1: Computer Science as a Field of Work and Study
  - CSCI 2270-4: Computer Science 2: Data Structures
  - CSCI 3104-4: Algorithms
  - CSCI 1300-4 or CSCI 1310-4: CS 1: Starting Computing
  - CSCI 2400-4: Computer Systems
  - CSCI 3155-4: Principles of Programming Languages
  - CSCI 3308-3: Software Development Methods/Tools

**Core**
- 6 courses from approved list required (18-20 hours)
  - 3000 level or above CSCI elective-3
  - 3000 level or above CSCI elective-3
  - 3000 level or above CSCI elective-3

**Capstone**
- select one option (8-9 hours)
  - Capstone Option-4 Semester 1
    - See department website for options and requirements
  - Capstone Option-4 Semester-2
    - See department website for options and requirements

**Humanities & Social Science** (24 hours)
- 6 hours must be upper division
- 3 hours approved Writing course

**Natural Sciences** (17 hours)
- must include approved sequence and elective science

**Computer Science Electives** (to bring CS total to 58 hours)

**Free Electives** (to bring total to 128 hours)

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www.colorado.edu/cs
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Updated May 26, 2016
University Communication Is Old School (use First.Last@Colorado.edu)

READ YOUR EMAIL

I WONDER IF I SHOULD MENTION I WAS IN THE CIVIL WAR.
Department Expectations

• Maintain your GPA
• You need a cumulative GPA and major GPA of 2.25 (C) or better
  • in all CSCI courses
  • in all courses attempted at CU
  • in all courses used to satisfy graduation requirements
• You need at least a C- or better in all CS foundation and CS core courses
• You need at least a C- or better for a prerequisite course to count for a required course in order to count that prerequisite towards degree requirements
• Good citizens of the university: Be respectful
Learning Is A Team Sport

- Collaborative learning in most of your classes
  - Pair programming
  - Peer instruction
  - Interview Grading
- Unique approach
- Follow policy for each course and ask questions if there is any doubt
Undergraduate Opportunities

- Many opportunities for undergraduate research
- Explore Faculty Web Pages and then talk to faculty
- Many opportunities for internships and employment
  - Google, IBM, Microsoft, Oracle, Ball Aerospace all within 5—20 minutes of campus
  - Lots of startup companies in the area
Educational Computing Resources

- Campus Labs (OIT)
- Computer Science Educational Lab (CSEL)
- Your laptop, running a virtual machine
- CS Foundations Program
- Computer Science Moodle
CSEL Resources

- Buncha Computers
- Conference room
  - Projectors available for checkout from CS main office
  - No print quota (be responsible)
CSEL Rooms

- ECCS 112, 112C, and 128
  - 112C is an (awkward) classroom
  - 112 and 128: Student workspace, sofas, TVs, …
  - CSEL Conference Room: 122
  - CSEL Office: 112B
- PCs: Core i7, 16G RAM, NFS root / home
  - ~5G disk quota
- Printer (in 112)
  - Don’t waste paper

- [https://cSEL.cs.colorado.edu](https://cSEL.cs.colorado.edu)
- [https://twitter.com/CUBoulderCSEL](https://twitter.com/CUBoulderCSEL)
- help@cs.colorado.edu
CSEL Resources (cont)

- Public web space: public_html in home directory
  - http://csel.cs.colorado.edu/~<username>

- Personal MySQL databases, accessible only from within CSEL infrastructure (workstations or ssh servers)
  - See the FAQ on the website for information on how to create/manage databases
  - https://csel.cs.colorado.edu/ → FAQ → MySQL Databases
Access

- Who
  - Everyone here
  - CS Department
  - CSCI Courses (and cross-listings)
- How
  - Identikey/password
  - Swipecard

Contact John Kelly (John.Kelly@Colorado.Edu)
Remote Access

• General purpose Ubuntu 16.04 servers
  • elra-{01..04}.cs.colorado.edu
• Personal static websites
  • https://csel.cs.colorado.edu/~identikey
  • From $HOME/public_html or $HOME/.www
  • For dynamic support use external services like DigitalOcean, AWS (You may want to use GitHub Student Pack)
Computer Science Foundations

- [http://foundation.cs.colorado.edu/](http://foundation.cs.colorado.edu/)
- Course Assistants
  - Help with Virtual Machines
  - Help with Classes and assignments
  - Learn about topics beyond what’s covered in classes
Undergraduate Academic Advising

- Required to meet with your advisor every semester.
  - “Advising Hold” in myCUinfo will prevent you from registering.
  - Hold only removed after you meet with your advisor.

- In myCUinfo you can find your registration date listed under “Your Enrollment Dates”. This should urge you to schedule an appointment in myCUHub ASAP. Can schedule planning meetings as early as September 15.

- Failure to schedule & attend this advising before your registration date can keep you from registering on time and from graduating on time.
Undergraduate Academic Advising cont.

- Carrie (last names A-L) is in ECOT 824. Lesley (last names M-Z) is in ECOT 822.
- Elevators (by the coffee shop) to 8th floor, exit to the right, then left down the short hallway.

- Drop-in hours are for quick questions or turning in forms, not planning out a semester, 4 year plan or Study Abroad.
- With many minors and non-majors, drop-in hours get very crowded. Plan ahead and schedule a meeting early!

- Use your Colorado.edu email address. You will receive many emails from Carrie and Lesley, the Registrar, College of ENGR, faculty, staff so READ YOUR EMAIL, it’s CU’s official means of communication.

- Read anything from myCUHub since advisors will send you message from time to time from myCUhub.
Fall Welcome

What: Come have some Boulder Ice Cream

Why: Meet up with other CS students, faculty and staff

Where: Discovery Learning Center: Lobby, Collaboratory

When: Thursday, Sept. 1, 3-5 PM

Chair, Liz Jessup’s remarks at 4 PM
Any Questions?