

Straight Talk

Computer Science at UCD

Prof. Norm Matloff

(Acroread keystrokes: left/right-arrow keys to move among slides; ctrl-L for fullscreen; ctrl-Q for quit)

THESE SLIDES AVAILABLE AT
<http://heather.cs.ucdavis.edu/ucdcs.pdf>

Is CS the Right Major for Me?

Coming up:

- proper background

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- career prospects for CS majors

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- It is BAD if you are:
 - in CS only at your parents' suggestion :-)

Careers: Job Market

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- Hybrid fields: Bioinformatics, financial modeling.

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- Patent law.

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- Ever-increasing need for good verbal skills.
- Beware of "labor shortage" claims with hidden agendas.

CS Curricula at UCD

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- interesting minors

Curricula: CS Majors

We, the CS Dept., are in the College of Engineering. We have two majors, one in Engineering (CSE) and one in L&S (CS), currently with about 250 students in each .

- Computer Science (CS):
 - administered by CS Dept. (i.e. us)
 - degree in Letters & Science
- Computer Science and Engineering (CSE):
 - administered by CS Dept. (i.e. us)
 - degree in Engineering
- Computer Engineering (CE):
 - administered by ECE Dept.
 - degree in Engineering

Curricula: Comparison

Major, department, college, software depth, hardware depth, flexibility:

major	dept	coll	sw	hw	flex
CS	CS, Eng.	L&S	10	5	10
CSE	CS, Eng.	Eng.	10	8	1
CE	ECE, Eng.	Eng.	8	10	1

- numbers are ratings on 1-10 scale
- all 3 majors properly called “computer science”
- benefit of CSE/CE: you see the whole machine
- benefit of CS: flexibility allows you to do a minor, even a double major

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- Grads of the two majors tend to get the SAME kinds of jobs.
- Most employers do NOT prefer an Engineering degree (CSE) over a Letters and Science degree (CS).
- Just choose the major you are interested in.

Curricula: Interesting Minors

- “CS+X”: Many employers like background in an area of CS application.
- Classical minors: Math, Statistics, Econ.
- Technology Management: Popular minor offered by the Graduate School of Management.

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- Networks (6+ faculty)

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Most are directly involved with the real world. Just a few examples:

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- California Sec. of State commissioned Prof. Bishop to review voting machines for security holes.

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- Many have worked in industry/gov.: Rogaway (IBM), Levitt (SRI), Ma (NASA), Devanbu (AT&T), Matloff (RCC).

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- bioinformatics courses
- a discrete-event simulation course
- a scripting language course

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- Four CS faculty have won the campus-wide Distinguished Teaching Award: Joy, Matloff, Ollson, Walters.
- Two CS faculty have won the campus-wide Best Faculty Adviser Award: Joy, Matloff.
- Faculty know many students personally, welcome student research.

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- Generally, more employers recruit at UC schools than at CSU.

UC vs. CSU cont'd.

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- UC faculty encourage undergraduates to participate in faculty research projects. Cal Poly requires a Senior Project.
- CS curricula basically same at CSU, UC. Neither is more “practical” than the other.
- We are the source! Cal Poly CS Dept. has 4 faculty who got their PhDs here at UCD (Haungs, Franklin, Keen, Nico).

Location and Jobs

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- Proximity to Sacramento means:
 - Lots of good internships available in state government.

Advice on Learning Strategy

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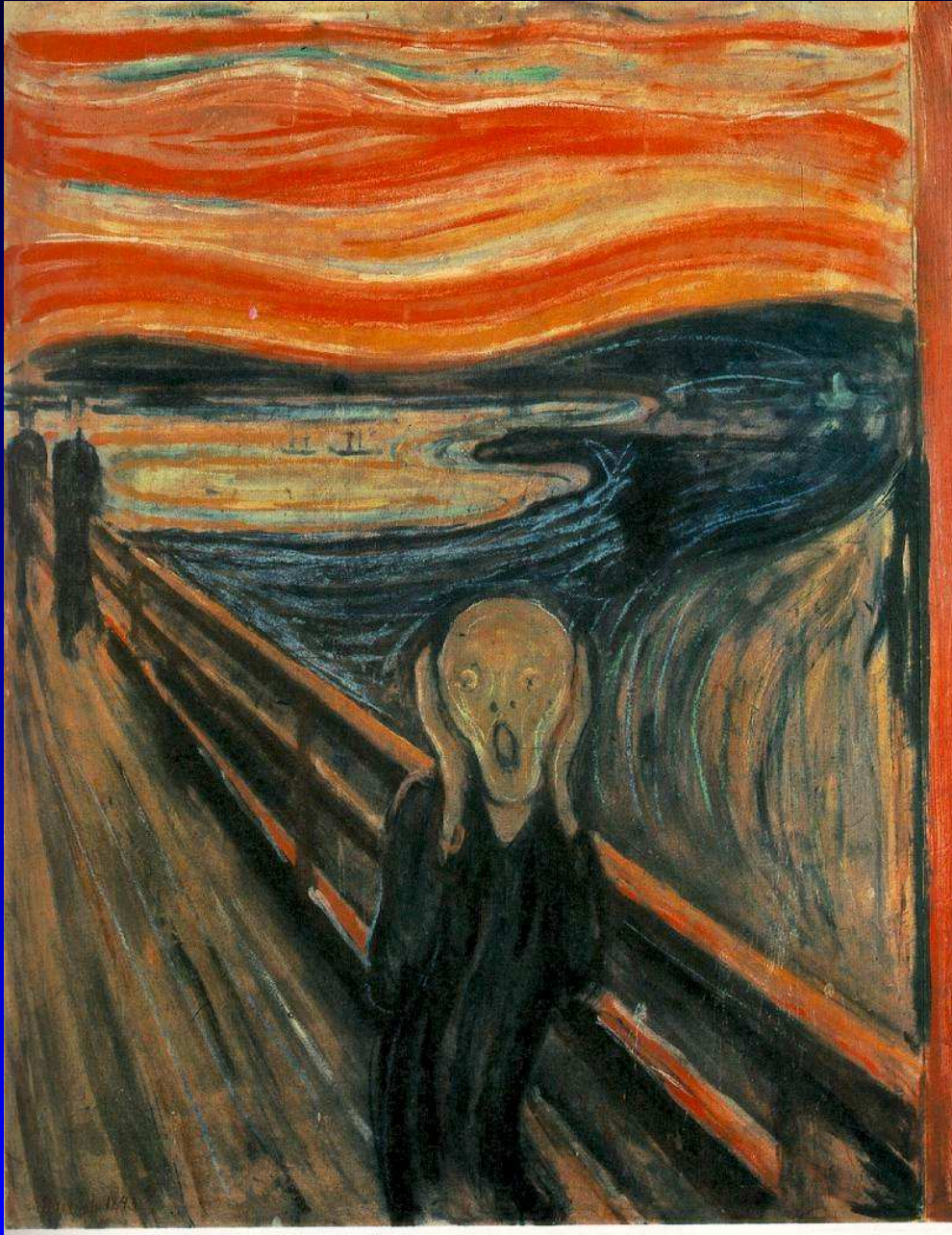
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- **Workload:** Student comment—“One [UCD] course is like 3 high school courses.”
- **Quarter system:** Gets going right away.
- **Don't worry!** You'll do fine. But be prepared for big change.

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Good grades are NOT ENOUGH.

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- “Question Authority!”
- Learn on your own. **NOT ALL LEARNING COMES FROM COURSEWORK.**

Learning OUTSIDE Class

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- Do research with a professor.
- Write your own programs—utilities, games, etc.—for your own use.

OUTSIDE cont'd.

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- Develop your communication skills. This does NOT come from taking more English classes. It's an attitude, a willingness to speak up, a pride in one's writing.
- Read—and understand—*The Cuckoo's Egg: Tracking a Spy Through the Maze of Computer Espionage*, by Clifford Stoll.

More on Co-ops/Internships

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- Be aggressive in search: campus Career and Internship Center; Usenet newsgroup `ucd.cs.jobs`; friends/relatives in the industry.

Integrated BS/MS Program

- If you want to do software development, a Master's degree will really enhance your prospects to obtain such employment.
- All UCD computer science majors (CS, CSE, CE) offer an integrated BS/MS option.
- Grad school is a completely different world. To really get the intellectual (and practical) benefit, do Plan I (thesis), not Plan II (exam).

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Most computer-related UC grads get jobs in full or partial Linux shops.

Linux

Students are strongly encouraged to install Linux on their home PCs:

- Have the same environment at school, home.
- Learn lots of valuable system admin. skills.
- Enhance your job prospects.
- The only way to really know Linux is to USE it on a daily basis, for all your work: programming, e-mail, Web use, etc.
- Linux User's Group of Davis (LUGOD) one of the most active in the nation.

For Further Information

- Questions welcome now.
- Dept. Web page, www.cs.ucdavis.edu.
- Welcome to contact me, Norm Matloff,
matloff@cs.ucdavis.edu, (530) 752-1953.