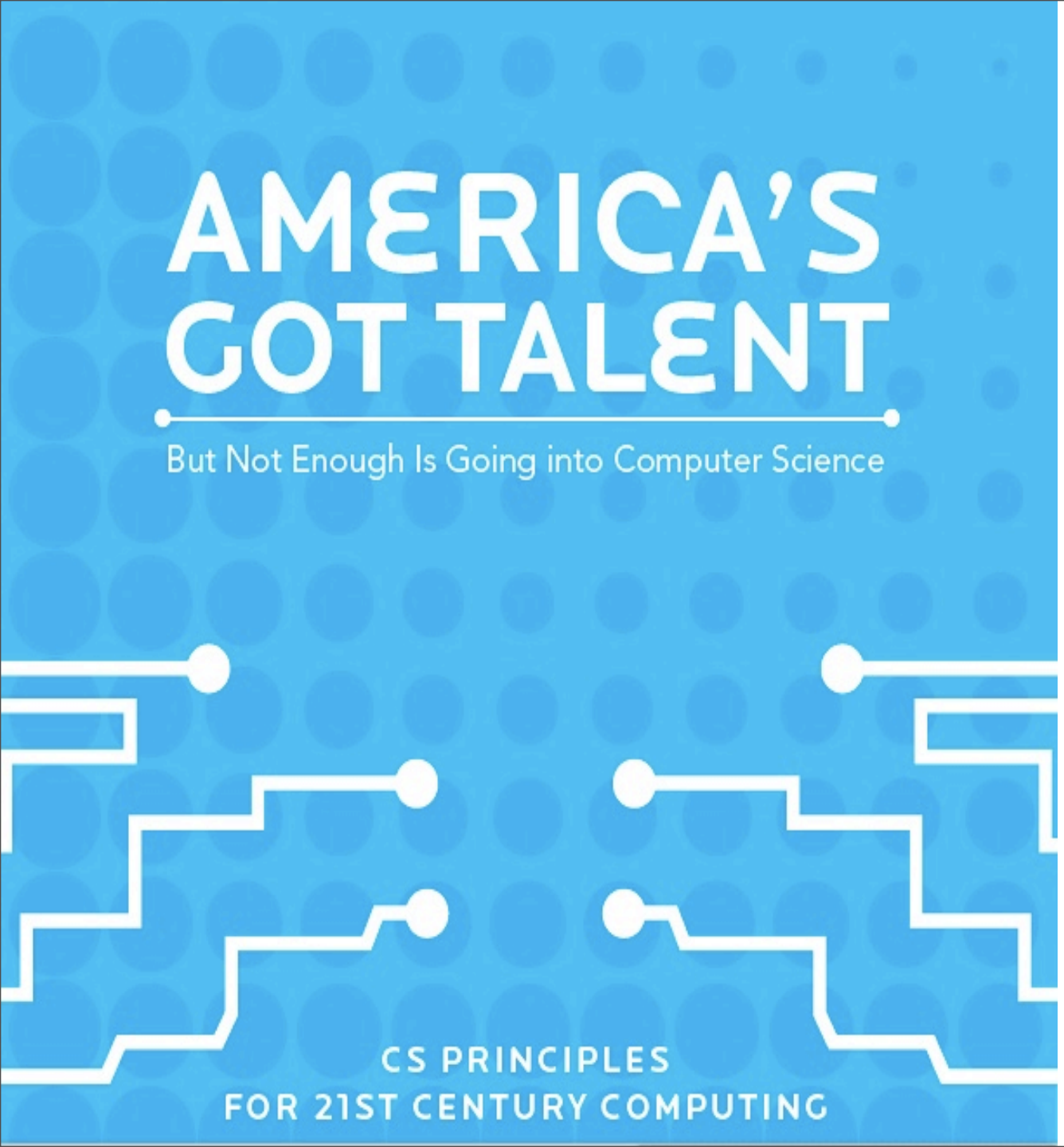


The CS 10K Project

Jan Cuny, NSF

Owen Astrachan, Duke

Larry Snyder, UW

What's happening in high schools?

In most high schools, computing courses …

- Cover only basic literacy
- Are taught as CTE (vocational ed)
- Aren’t eligible for college prep credit
- Don’t count as a math or science credit

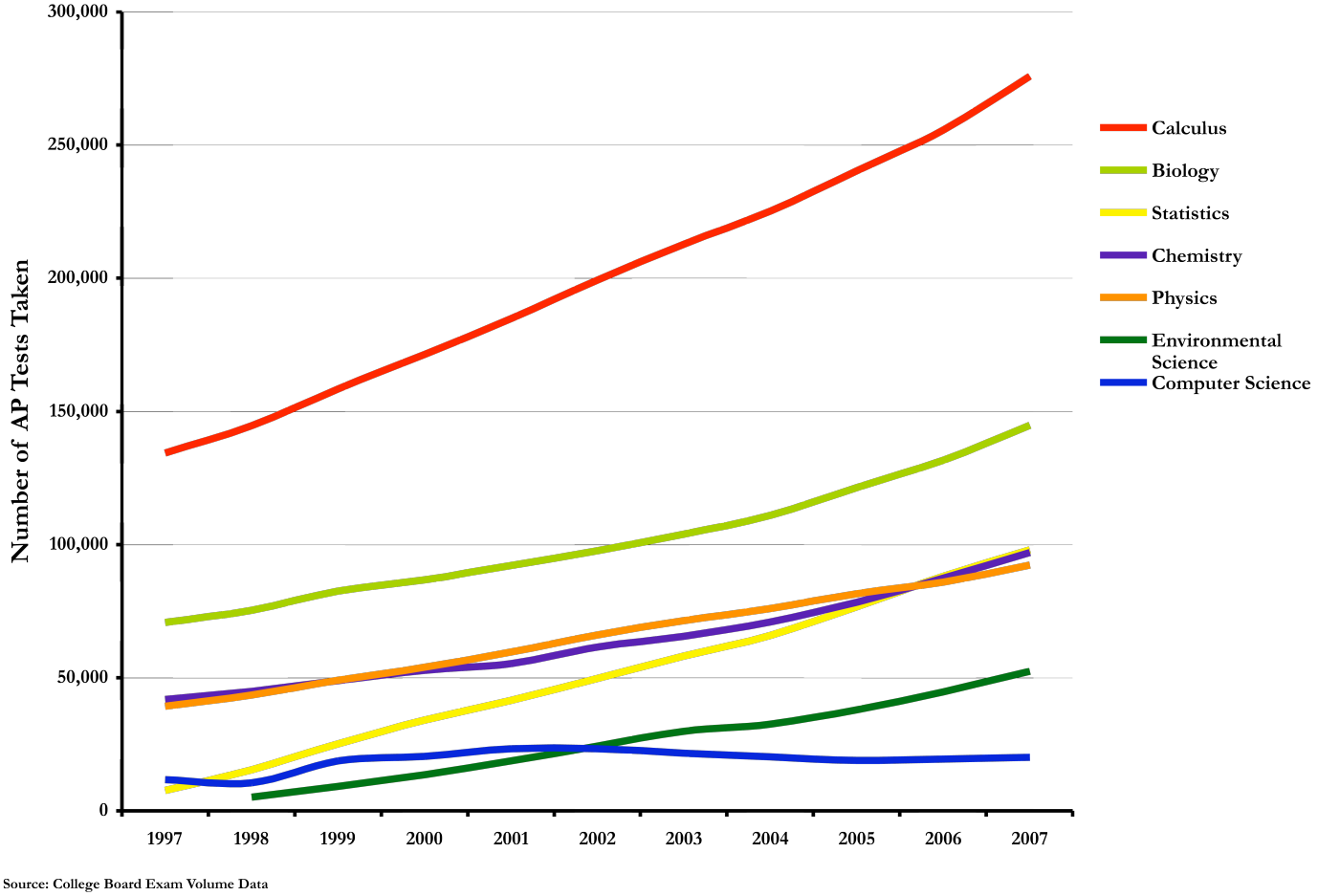
AP Participation

In 2008 15,527 students took AP CS A

- 222,835 Calculus AB
- 154,504 Bio
- 108,284 Statistics

College Board, 2008

AP math & science exams



Source: College Board Exam Volume Data

Slide: CSTA, Data: College Board

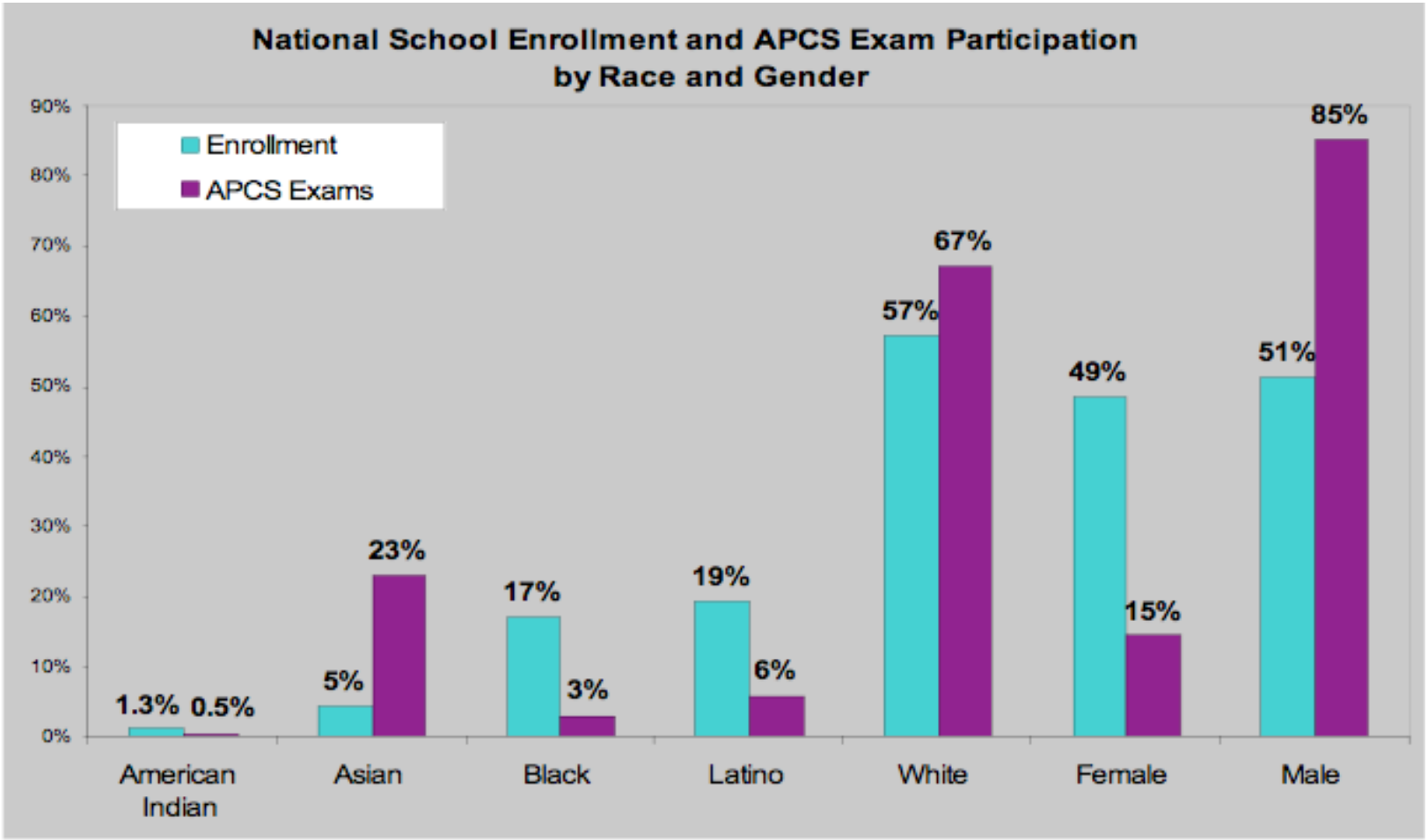
Gender Gap

AP CS A had the worst gender balance of any of the AP tests

- 18.6% CS A
- 48.6% Calculus AB
- 50.7% Statistics

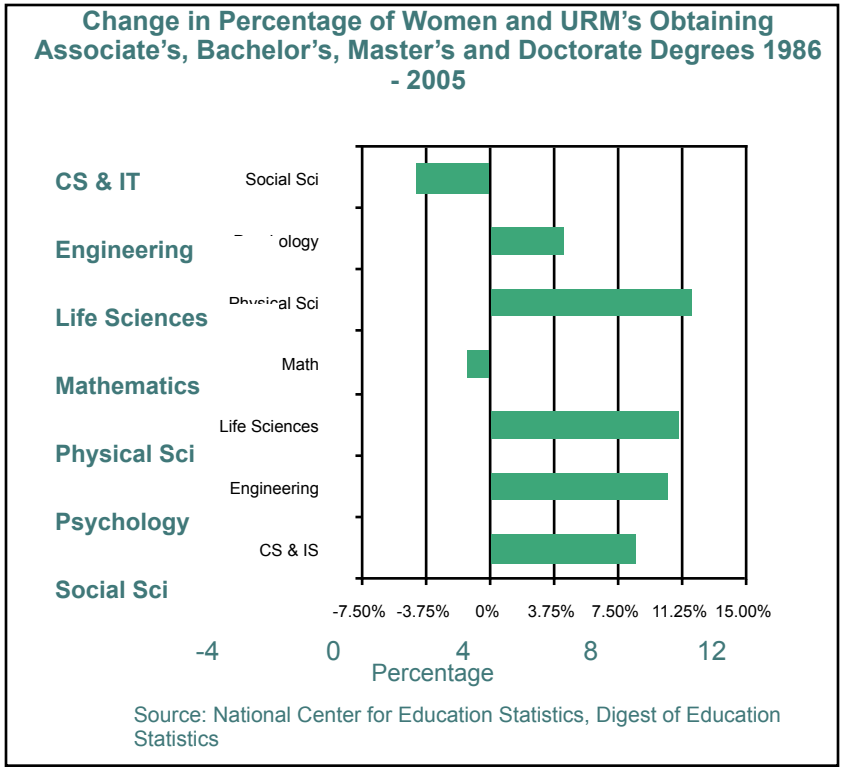
College Board, 2008

The missing 70%

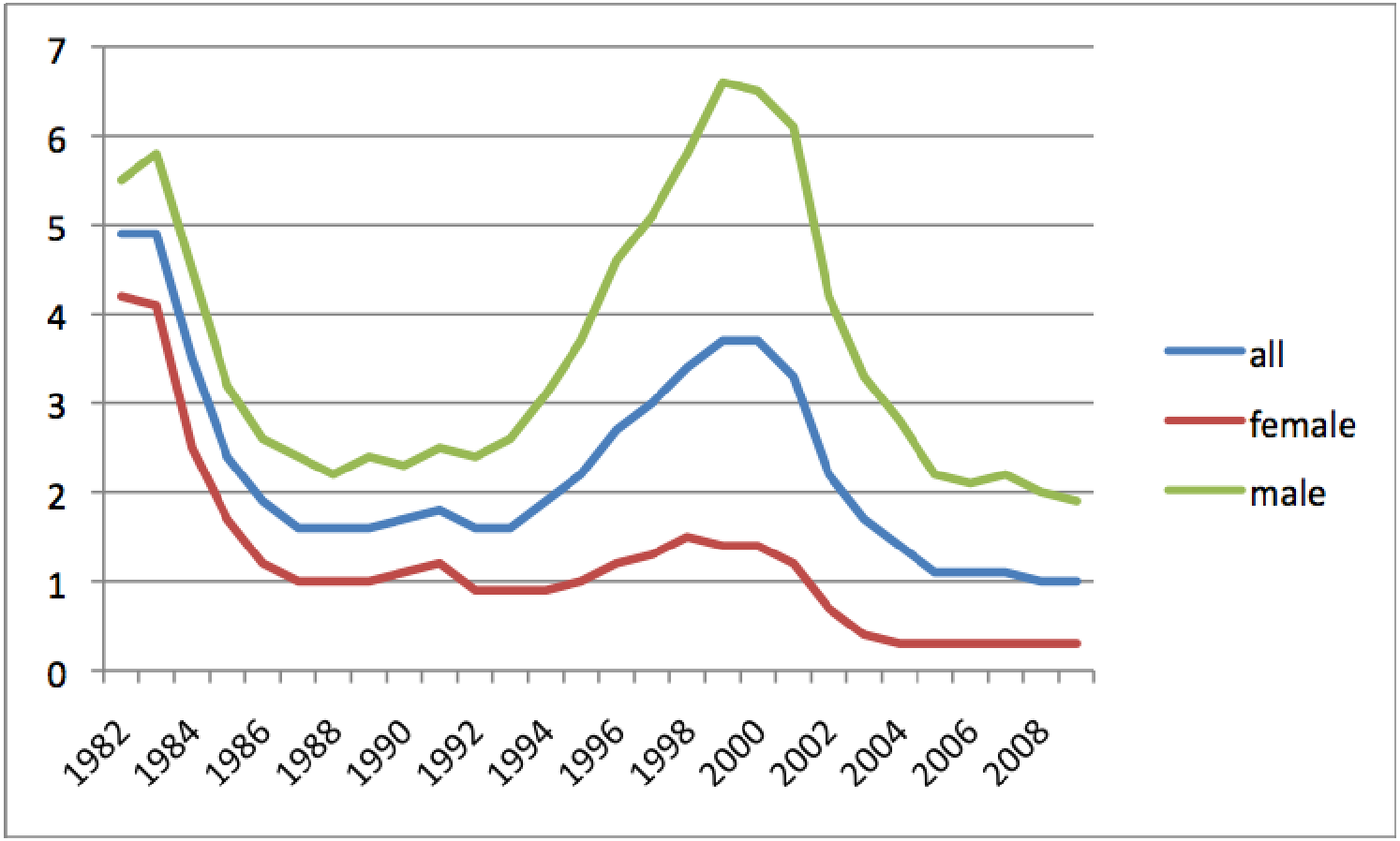


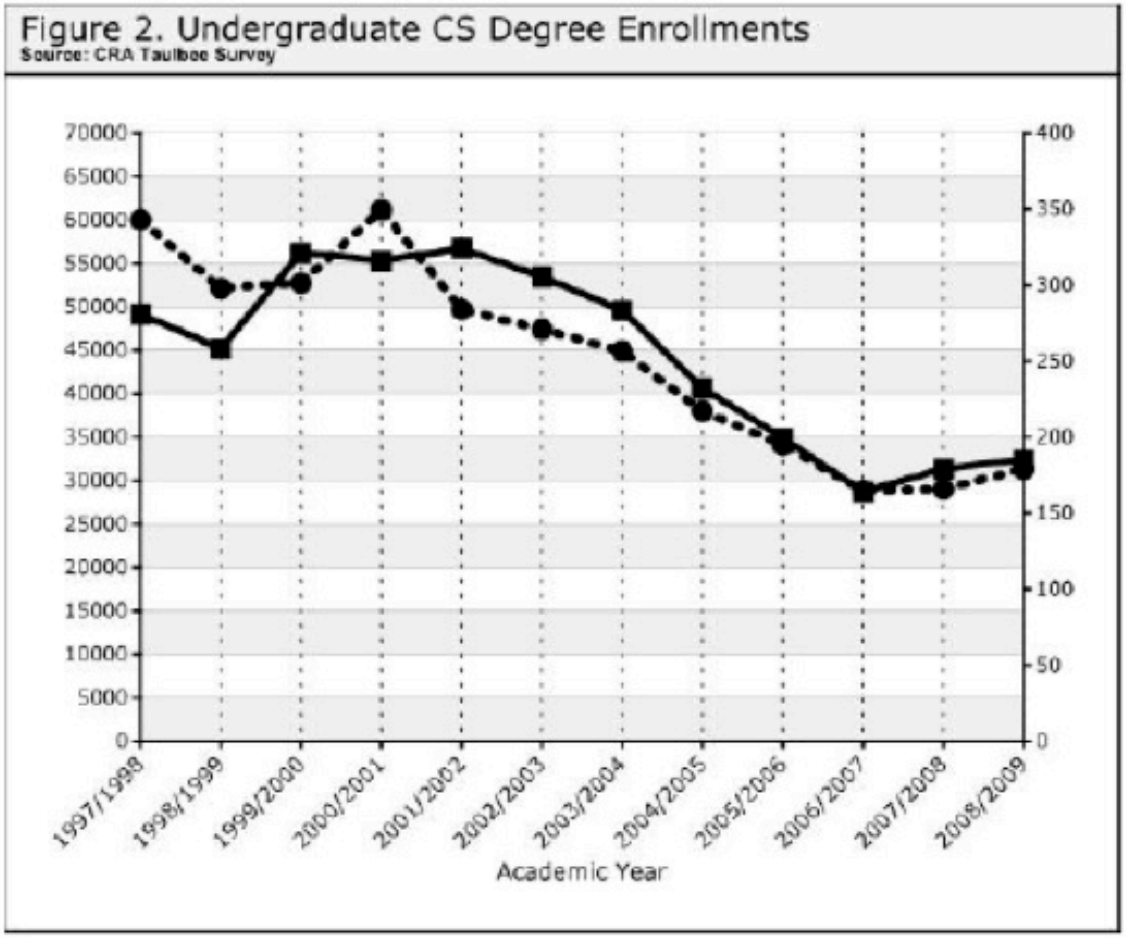
Slide: CSTA, Data: College Board

Behind National the Trends



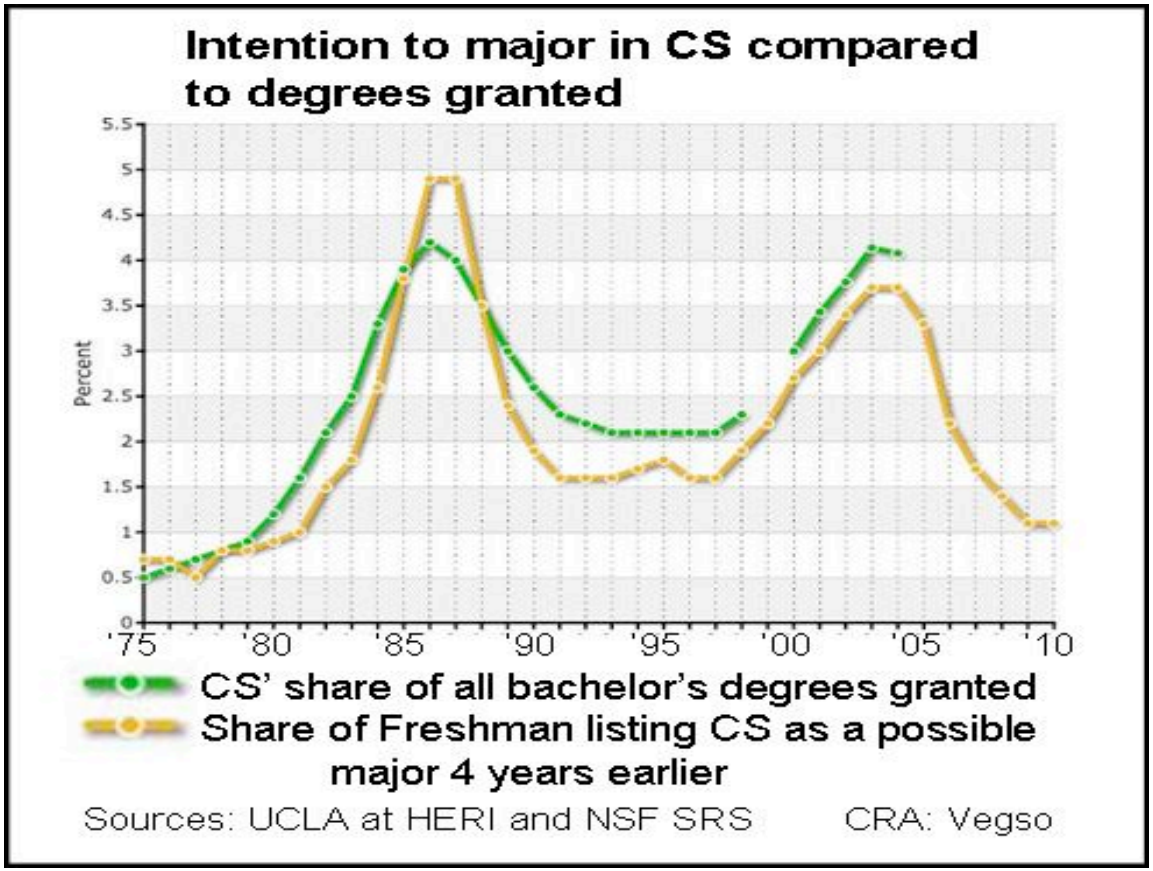
Moving on through the pipeline





CRA, Taulbee 2010

Future trends?



Why HS?

Why HS?

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Without it

- Anything we do for middle school will be lost.

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Without it

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Why HS?

Without it

- Anything we do for middle school will be lost.
- Anything we do at the college level will be insufficient.

Why focus on AP?

CollegeBoard

Why focus on AP?

- Often the only CS course that carries college prep credit

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- Attractive to students & schools & colleges

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- Attractive to students & schools & colleges
- 2,000 CB-audited teachers
- Fidelity of replication
- Only point of national leverage

What's wrong with the current AP course?

What's wrong with the current AP course?

- Doesn't appeal to many students (particularly women and minorities)
- Inaccessible to students without previous experience
- Fails to introduce the fundamental concepts of CT
- Doesn't teach the breadth of application or "magic" of computing

Math and Science in U.S. High Schools (NRC, 2002)

- AP courses should
  - Reflect what we know about how students learn
  - Build students' transferable, conceptual understanding and inquiry skills
  - Convey the content and unifying concepts of a discipline
- AP courses should not be designed solely to replicate introductory college courses (which are not typically exemplary models)

Chemistry, Biology, Physics, and Environmental Science are leading the

Chemistry, Biology, Physics, and Environmental Science are leading the

Computer Science is right behind.

(CNS-0938336)

(Proposed) CS Principles

Proposed AP CS Principles

- Engaging, accessible, inspiring, rigorous
- Focused on the fundamental concepts of computing (CT)
- A target for K-9 course development; An impetus for college curriculum reform
- Available nationwide

High School

- Introductory course for everyone
- Proposed AP CS Principles
- AP CS Programming?

ECS Team at LAUSD

Not an AP fan?

Other models, like dual credit or a single senior year course?

Mix and match available curricular materials


Getting it
taught, and
taught well

CS 10K

Develop an effective new high school computing curriculum and get it taught in 10,000 schools by 10,000 well-prepared teachers by 2015.

10,000 Teachers / 10,000 Schools

- In-service preparation
- Pre-service preparation
- Ongoing professional development
- Entrée into schools

The ASK

- Get computing listed as a recommended course for incoming students at your university
- Help make CS Principles a great AP course
- Collaborate with K-12 and Ed Schools to on CS 10K (see new CISE solicitation)

Jan Cuny
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