



BOISE STATE UNIVERSITY

It's NOT working Women in Engineering & Computer Science

May 22, 2014

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It's NOT working

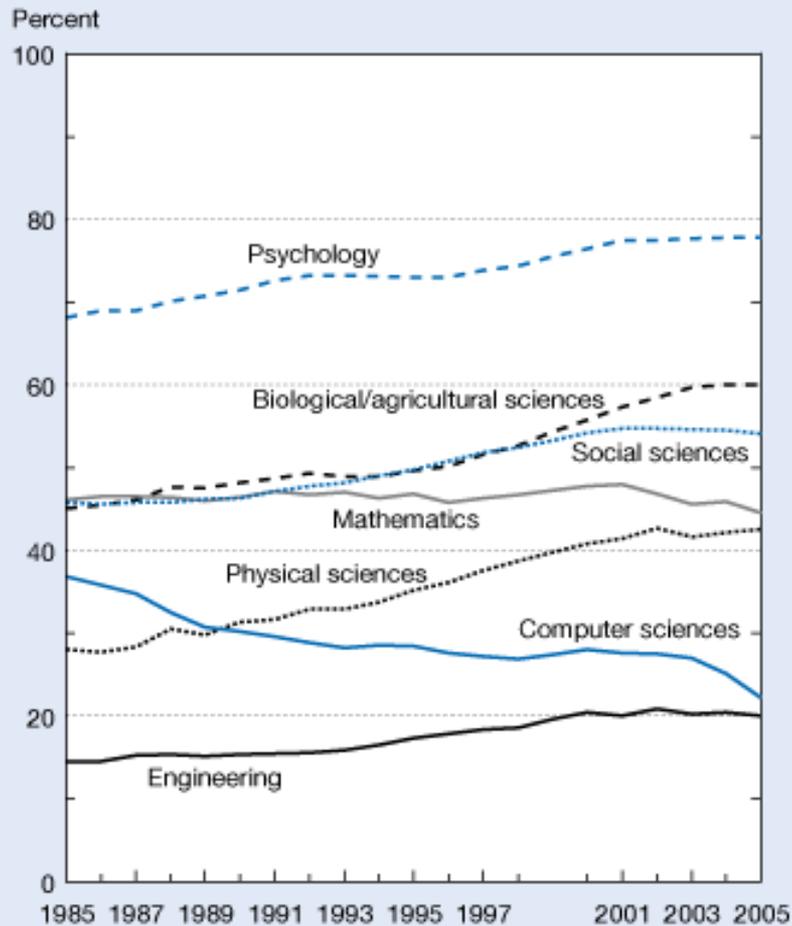


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This Talk

- Slightly different
 - I have ideas
 - I don't have answers
- Statistics on Women in Engineering/CS
- Boise State's numbers
- Outreach
- What can we do?

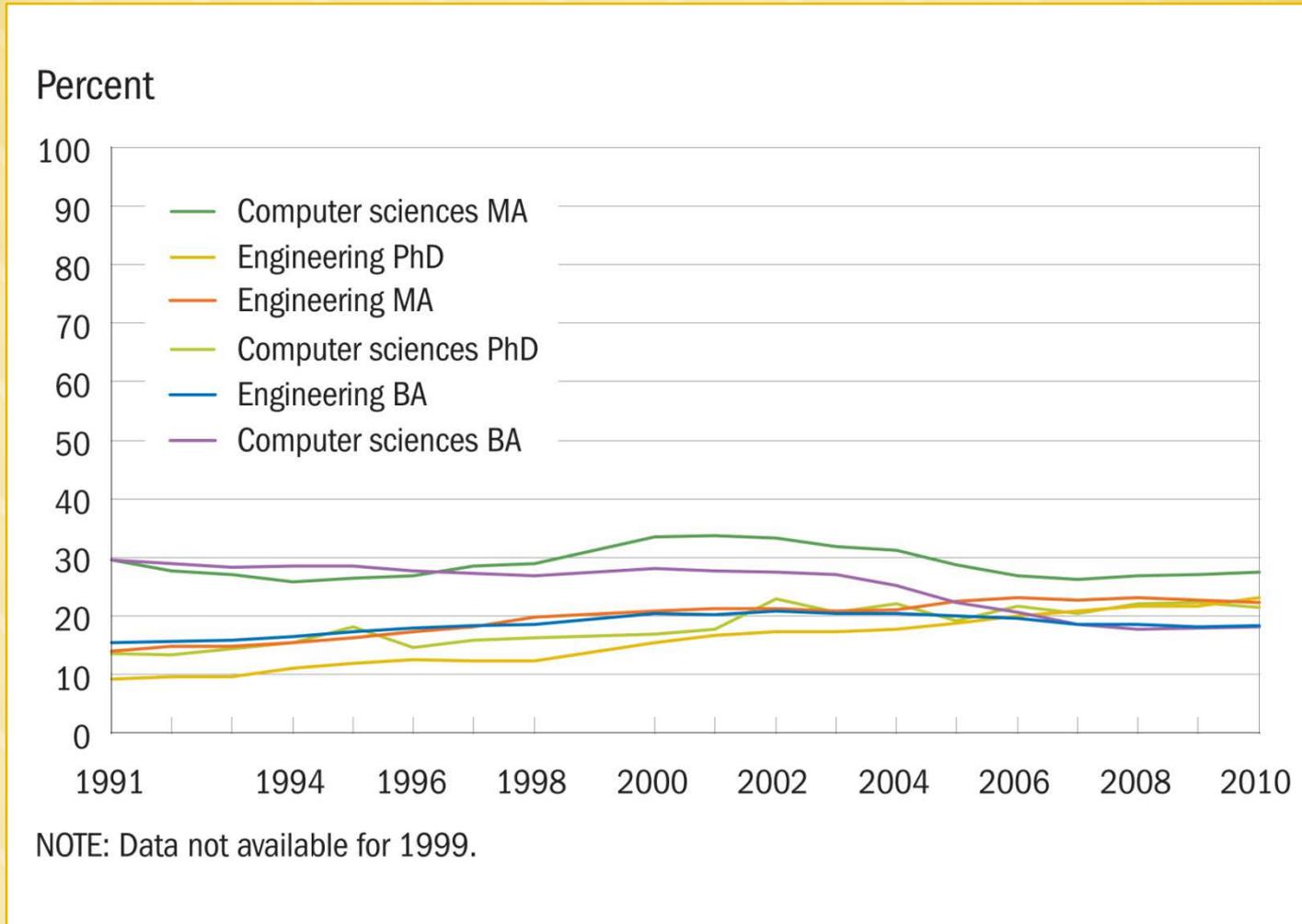
Figure 2-15
**Female share of S&E bachelor's degrees, by field:
 1985–2005**



NOTES: Physical sciences include earth, atmospheric, and ocean sciences. Data not available for 1999.

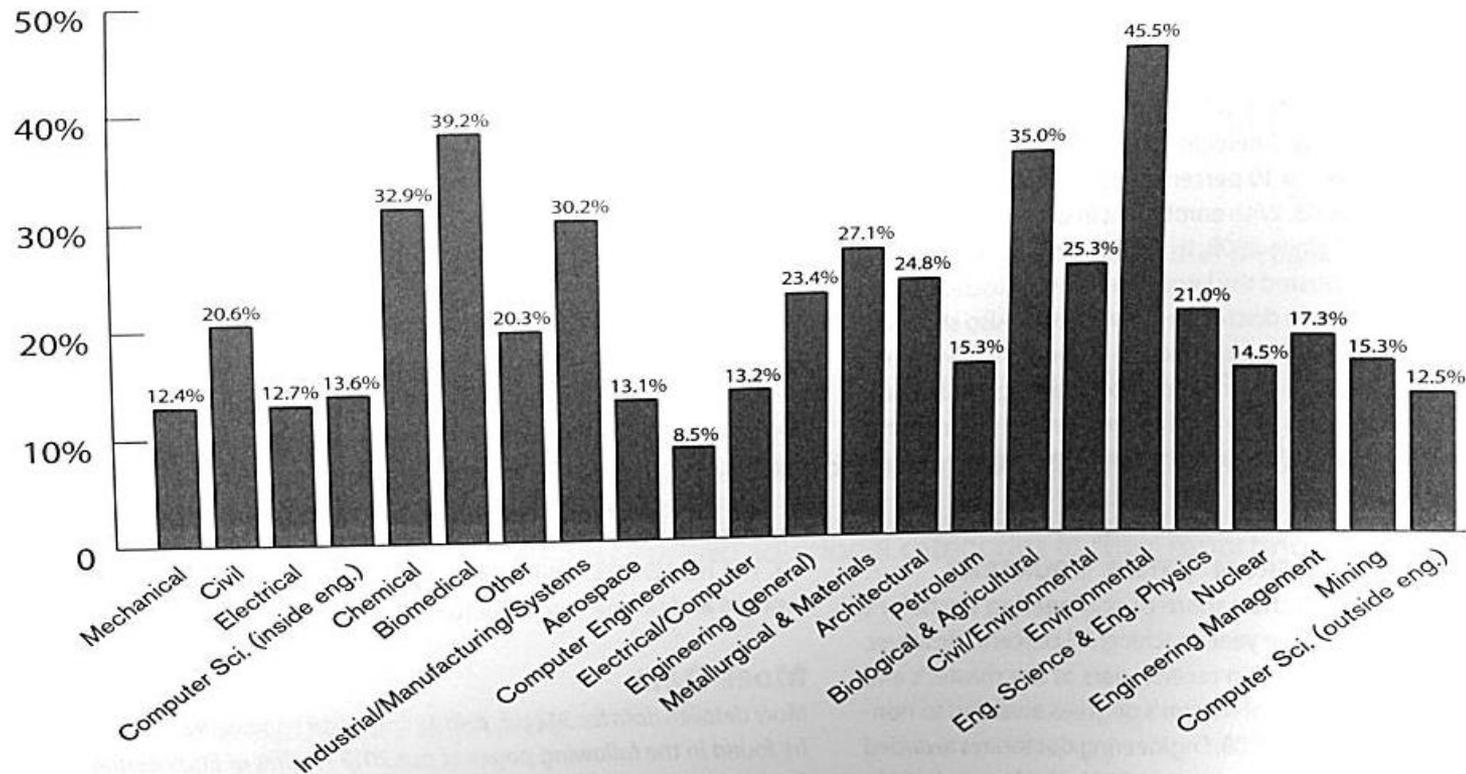
SOURCES: National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey; and National Science Foundation, Division of Science Resources Statistics, WebCASPAR database, <http://webcaspar.nsf.gov>. See appendix table 2-27.

Low participation fields for women: Computer sciences and engineering, 1991-2010





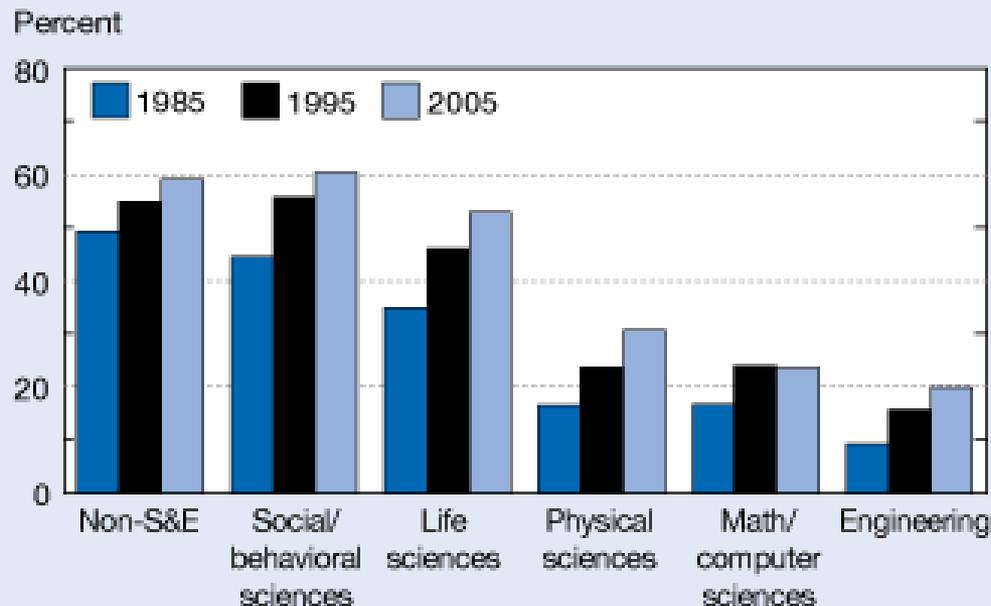
PERCENTAGE OF BACHELOR'S DEGREES AWARDED TO WOMEN BY DISCIPLINE: 18.9% OF TOTAL



American Society of Engineering Education, 2012 Data



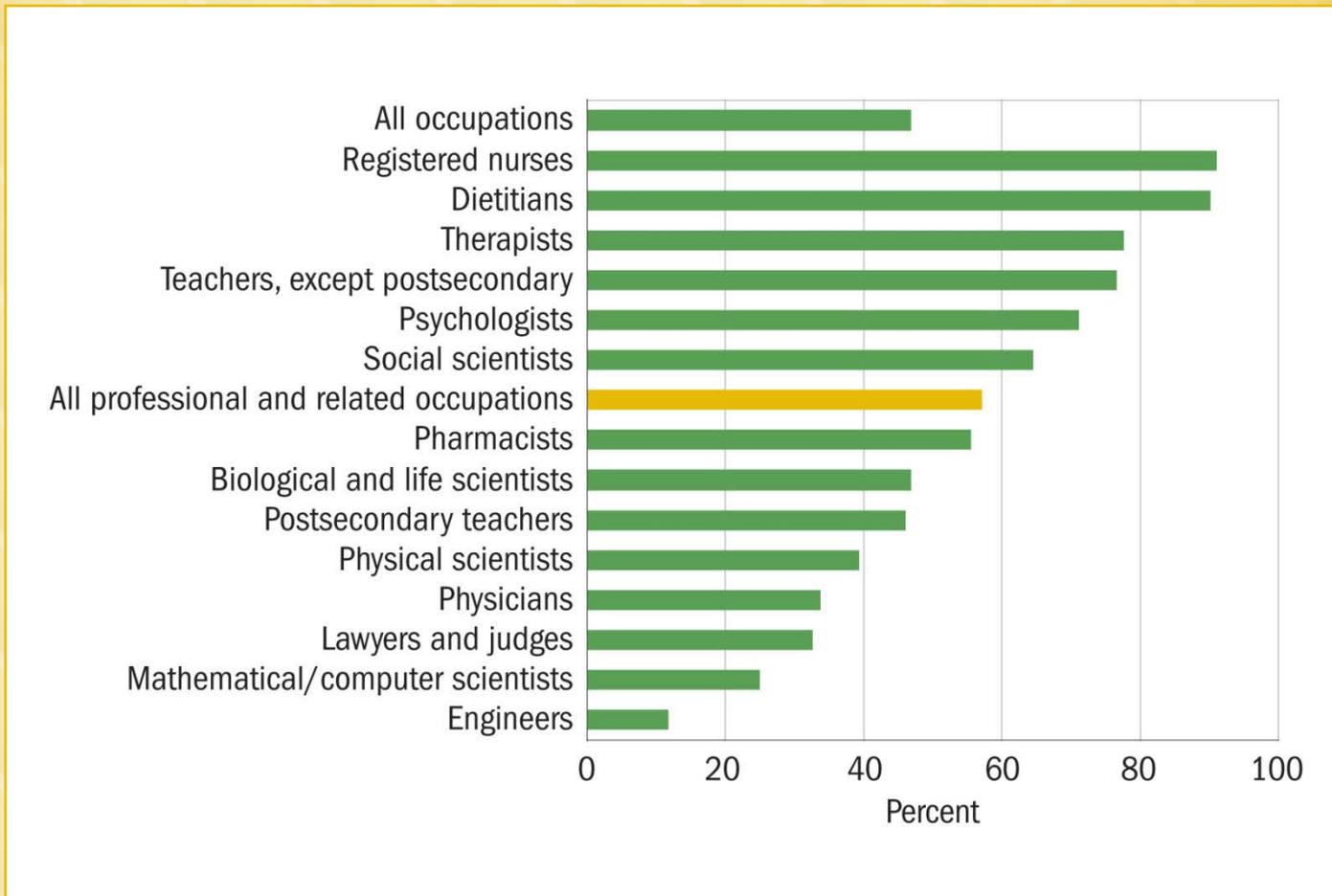
Figure 2-21
**U.S. citizen female share of doctoral degrees,
by field: 1985, 1995, and 2005**



NOTES: Physical sciences include earth, atmospheric, and ocean sciences. Life sciences include biological sciences, agricultural sciences, and medical/other life sciences.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Earned Doctorates, WebCASPAR database, <http://webcaspar.nsf.gov>. See appendix table 2-31.

Employed women 16 years and older as a percentage of selected occupations: 2011





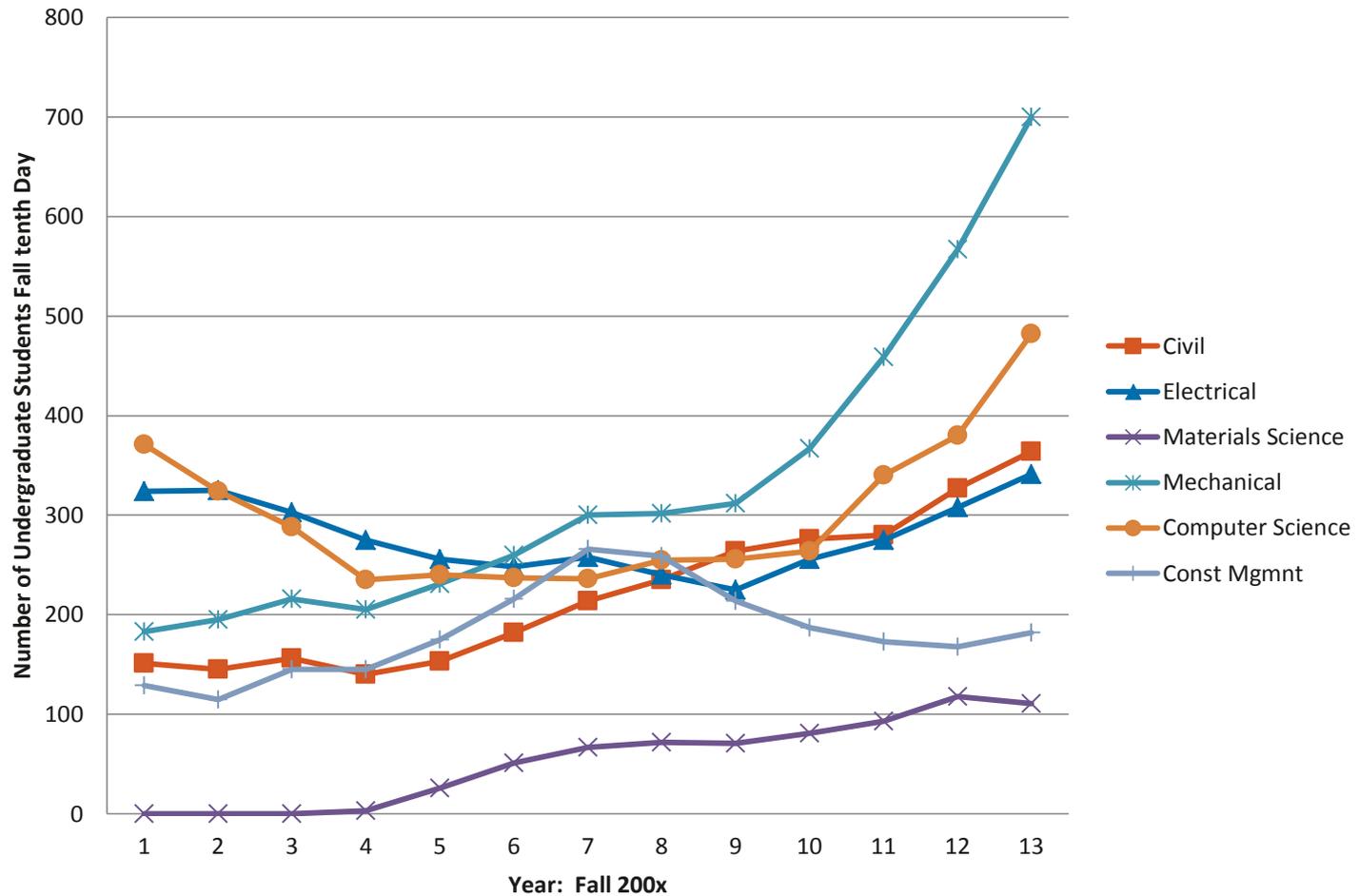
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What about Boise State?





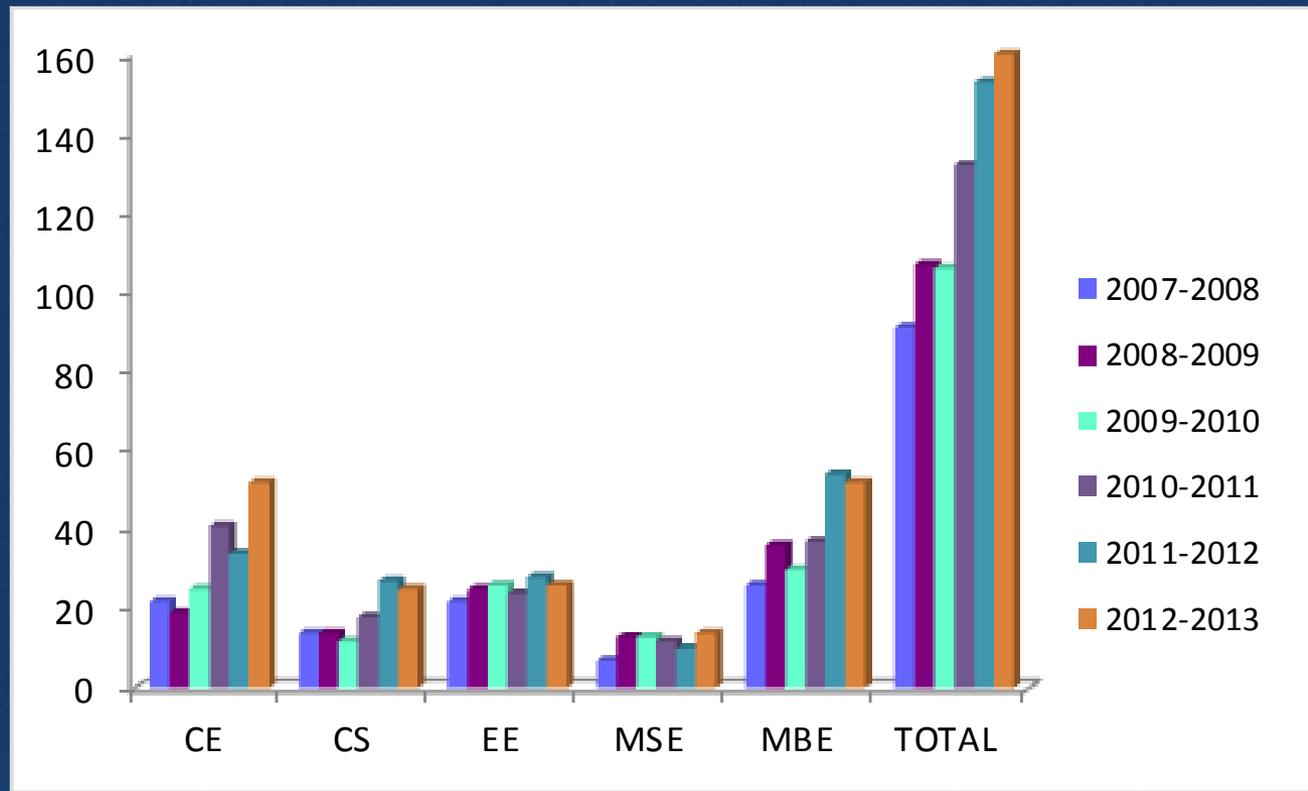
COEN Undergraduate Enrollment Fall 10th Day





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Engineering Undergraduate Degrees Awarded





Women in Engr/CS at Boise State

- Undergraduate: 12 to 13%
- Graduate: 18 to 20%
- Faculty members: 24%
- Women:
 - Retention is good (as good or better than men)
 - Time to degree is shorter
 - They don't apply and they don't enroll
 - Recruiting/Calling campaign
 - Scholarships



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Outreach

- Terrific programs across the nation.
- Boise State: host or partner on more than 12 programs per year
- eGirls
 - 40 to 50 girls each year
 - Approximately 40% go on to study in STEM discipline
- STEM Exploration: More than 5000 people on campus each year



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We need outreach.
It's NOT enough



Societal Issues

- Role models are not very visible
- What is an engineer?
 - Engineers improve the quality of life
 - Engineers design the world
- Wrong message (“Big Bang Theory”)
- Need our own TV show: CSI – Forensics
- Cartoons/Children’s books etc



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New Toys



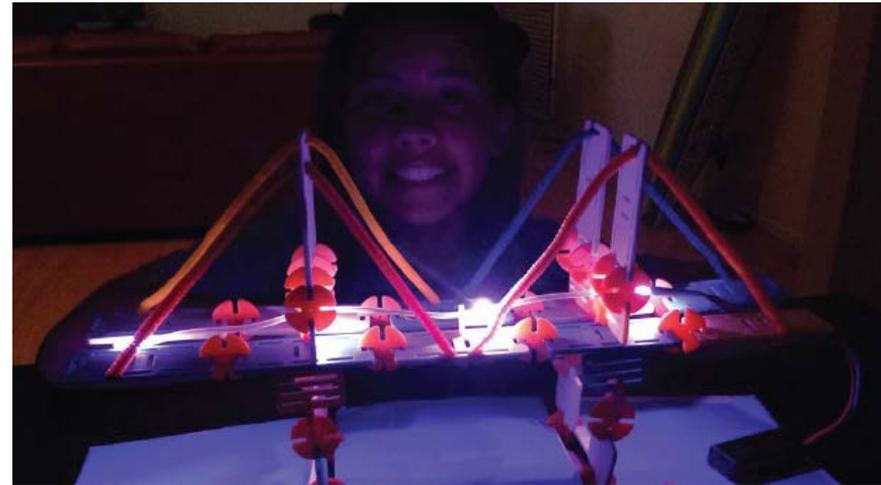
GOLDIEBLOX

- A book series plus construction set starring Goldie, the girl inventor.
- Builds spatial skills, engineering principles, and confidence in problem-solving.
- Comes equipped with 16 design ideas and unlimited building possibilities.



 roominate™

**Roominate: the original
wired dollhouse building kit**





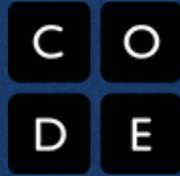
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Bo and Yana
i-Play





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www.code.org

Girl Develop It

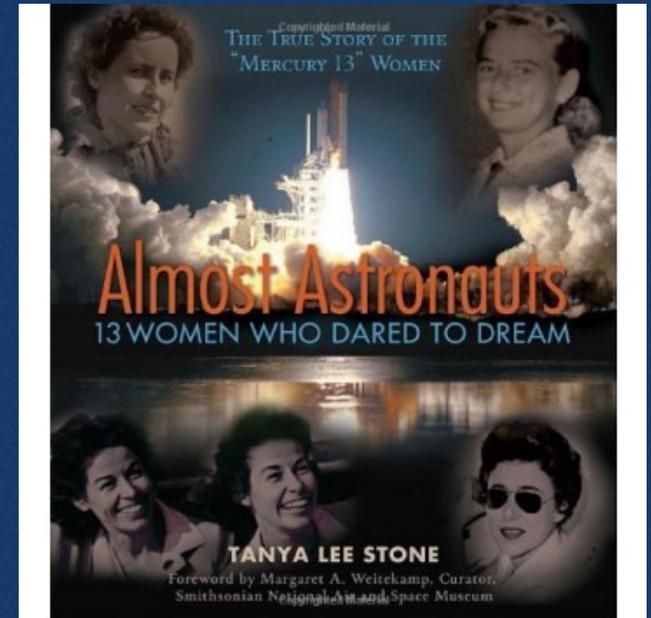
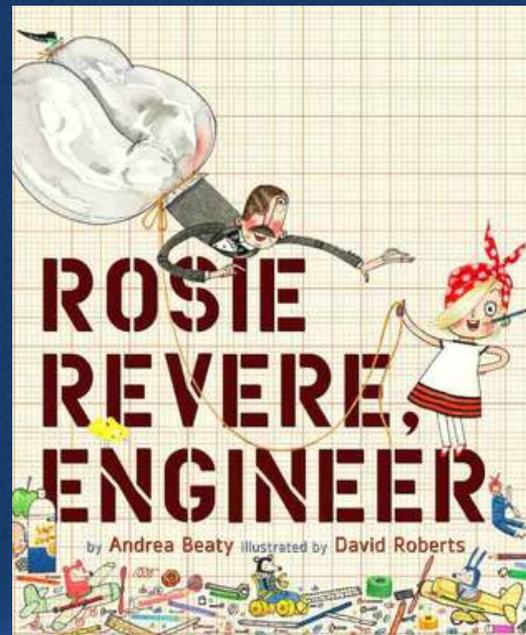
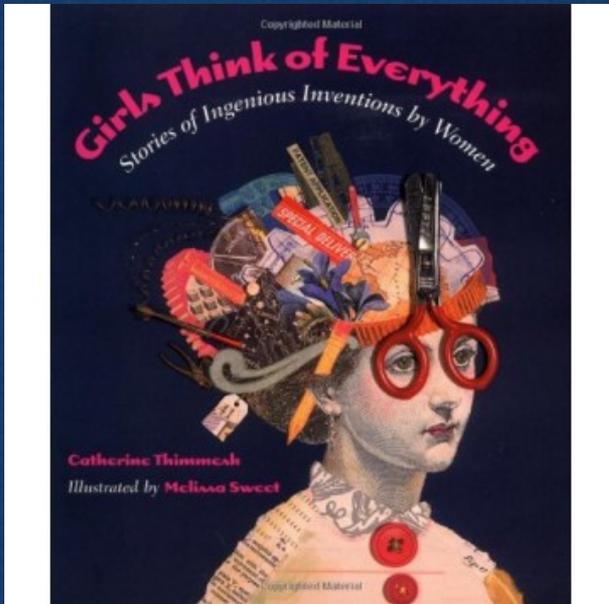
don't be shy. develop it. 

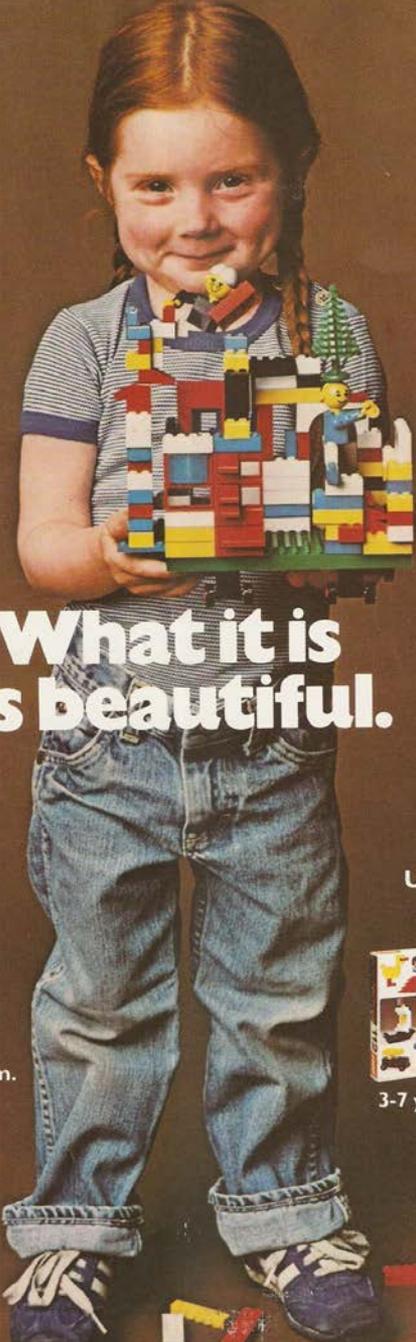
black girls  **CODE** 
imagine. build. create.



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Books





**What it is
is beautiful.**

Have you ever seen anything like it? Not just what she's made, but how proud it's made her. It's a look you'll see whenever children build something all by themselves. No matter what they've created.

Younger children build for fun. LEGO® Universal Building Sets for children ages 3 to 7 have colorful bricks, wheels, and friendly LEGO people for lots and lots of fun.

Older children build for realism. LEGO Universal Building Sets for children 7-12 have more detailed pieces, like gears, rotors, and treaded tires for more realistic building. One set even has a motor.

LEGO Universal Building Sets will help your children discover something very, very special: themselves.

Universal Building Sets



3-7 years
old



We have to
reach ALL girls



We have to make a difference!

- Make sure teachers (especially elementary school) know what engineers do.
- Better message
 - Engineers improve the quality of life
 - Engineers design the world
- Recruiting College Freshmen
- Talk to EVERY girl you know
- Buy toys/books for every pre-school, kindergarten, and childcare location



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But Wait

Do we need more engineers?

Engineering is the liberal art for the 21st century.



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Help

- Adopt a 5th grade teacher and introduce them to engineering
- Support an outreach event for girls
- Buy a toy/book for every girl you know
- Talk about engineering



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Thank you