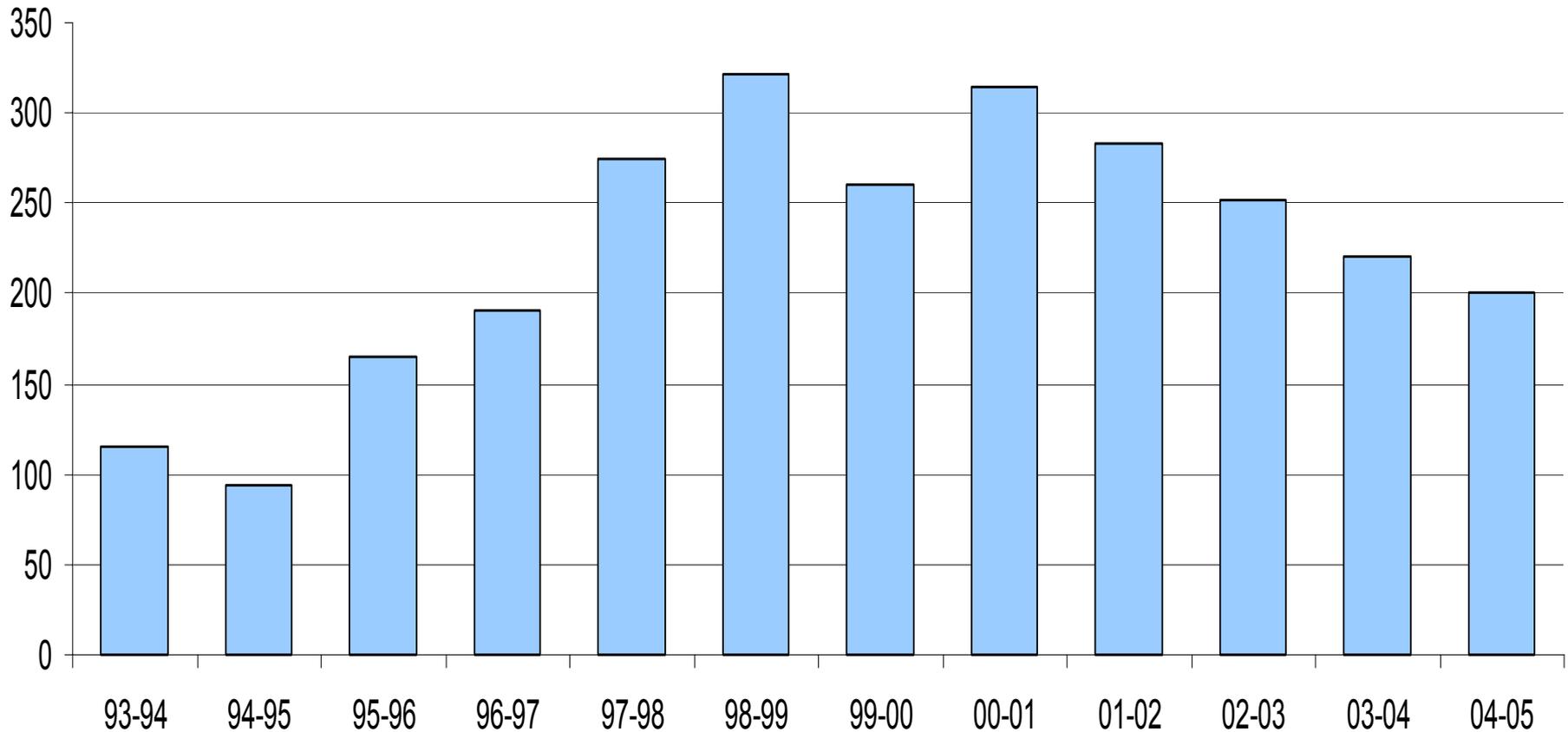


# **Computer Science Après Le Crash**

***Jeff Vitter***

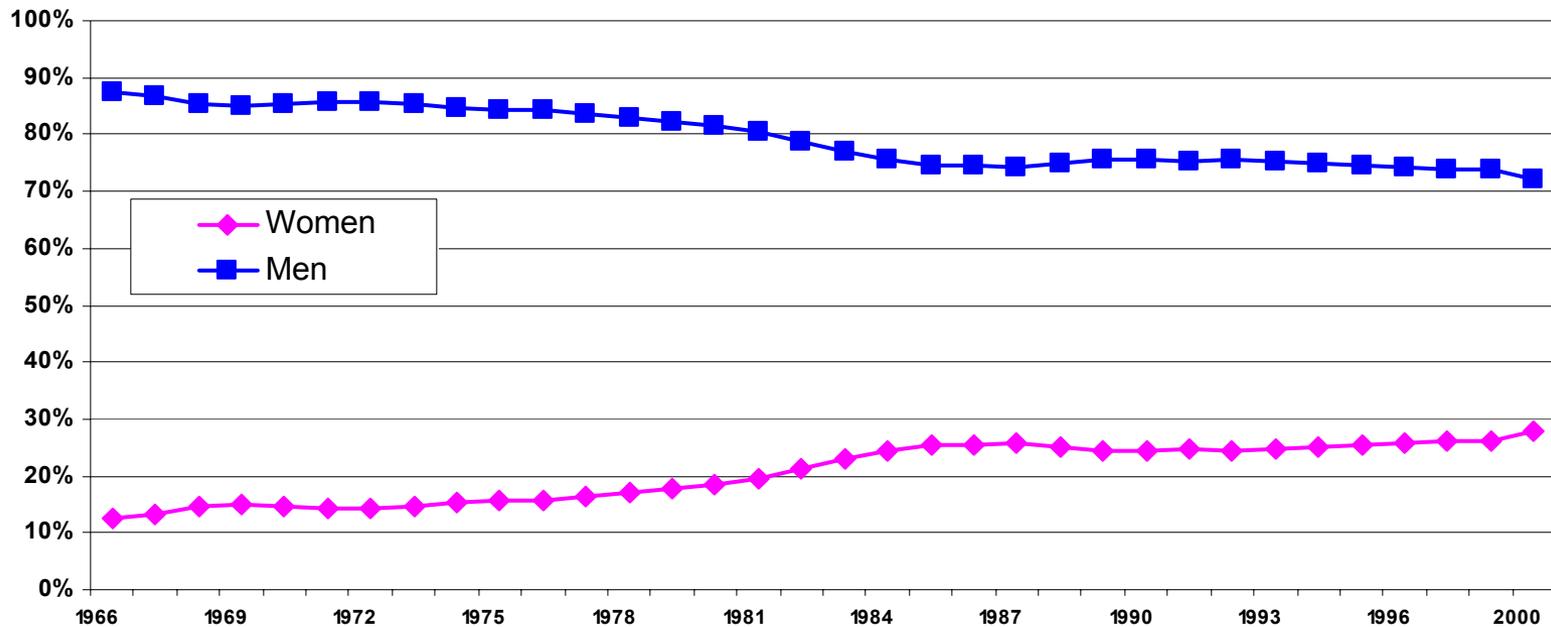
**Dean of Science  
Purdue University**

# New CS Undergraduate Students at Purdue

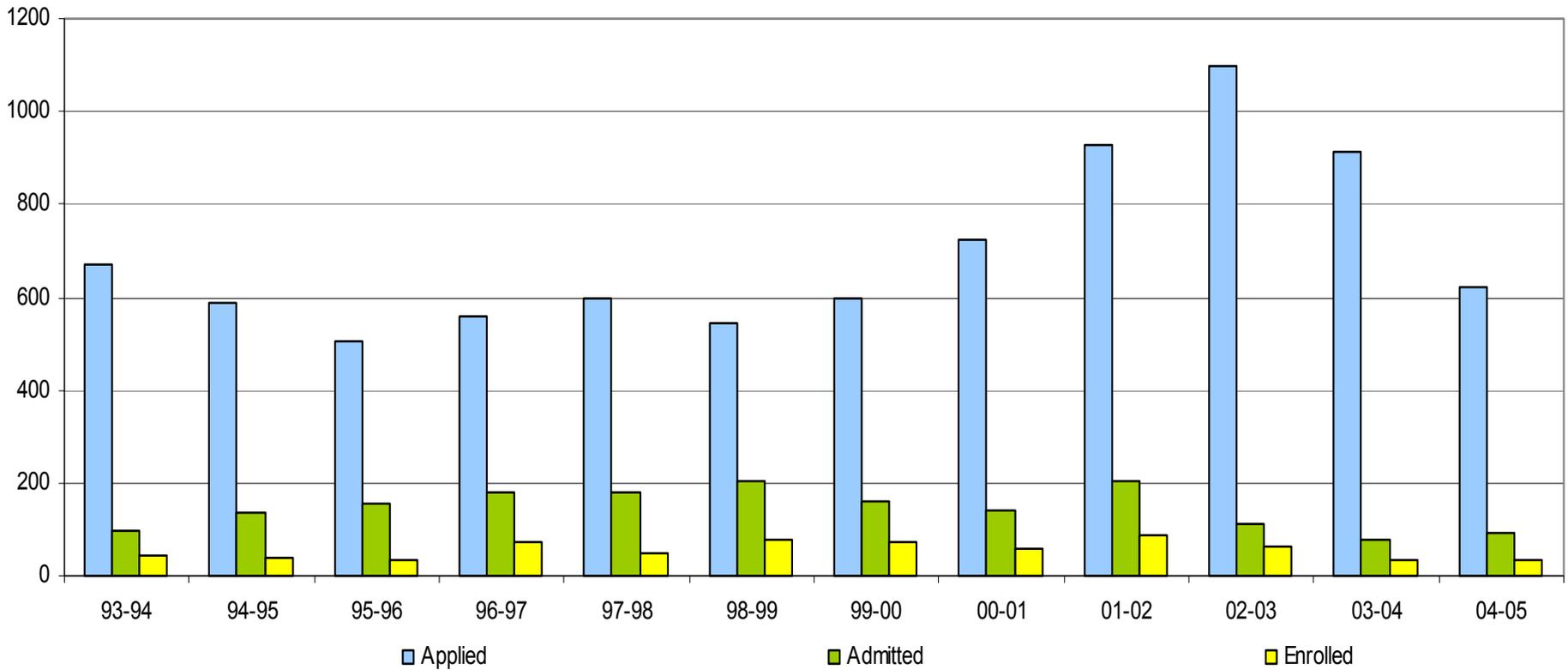


# STEM Bachelor's Degrees by Gender (not counting Life Sciences)

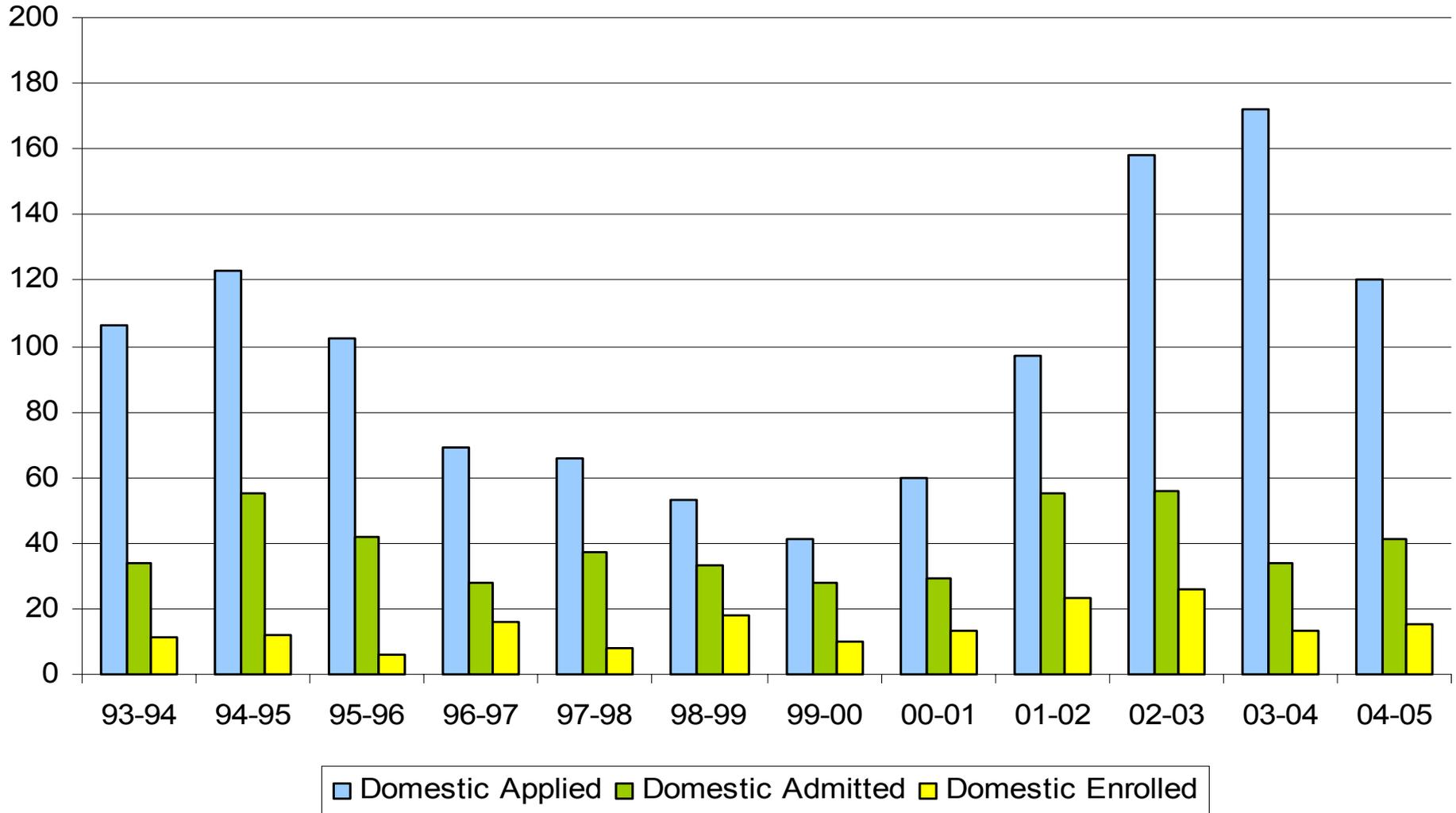
Share of Bachelor's Degrees in  
Physical Sciences, Engineering, Computer Science, Mathematics  
by Gender, 1966-2000



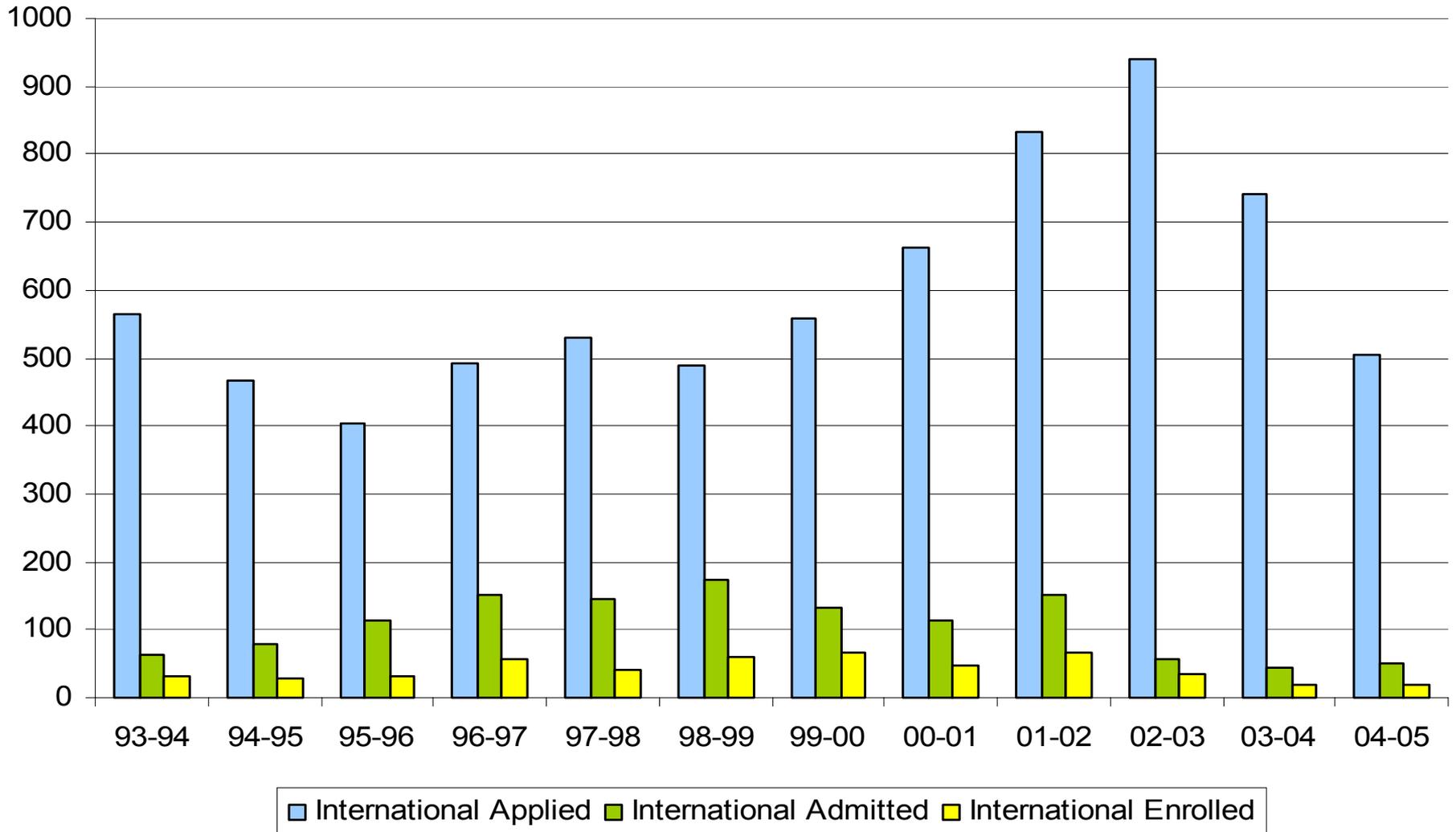
# New CS Graduate Students at Purdue



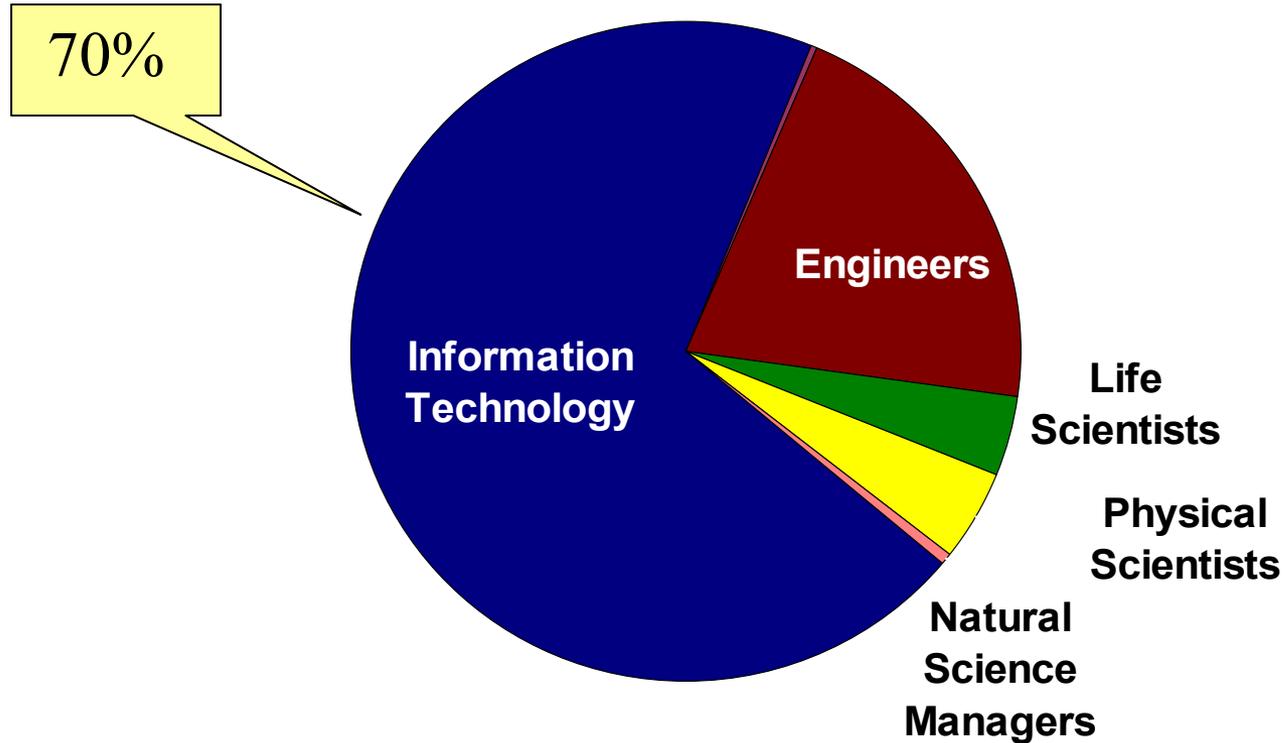
# New CS Grads at Purdue: Domestic



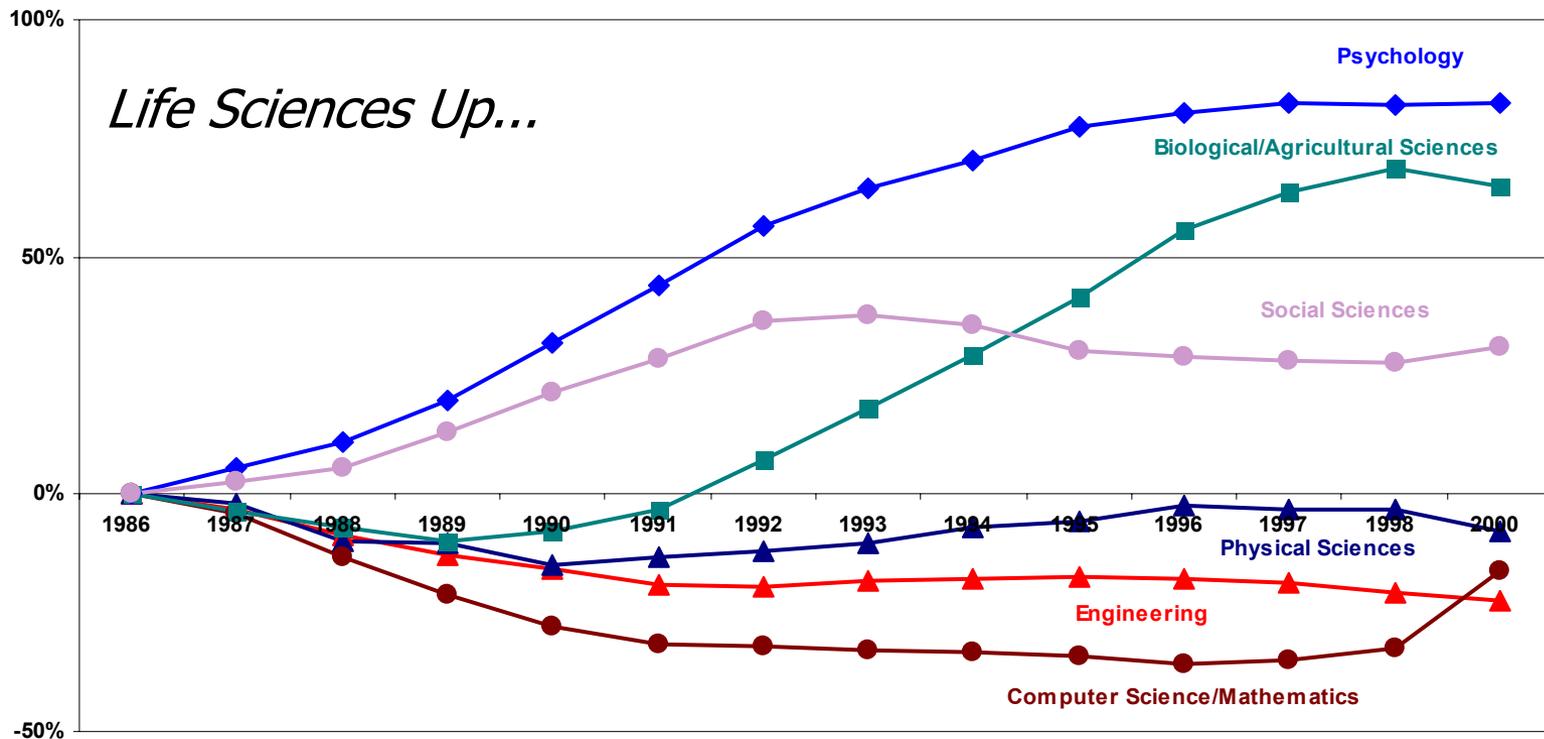
# New CS Grads at Purdue: International



# 2.3 Million Projected S&E Job Openings (new jobs plus net replacements) 2002-2012



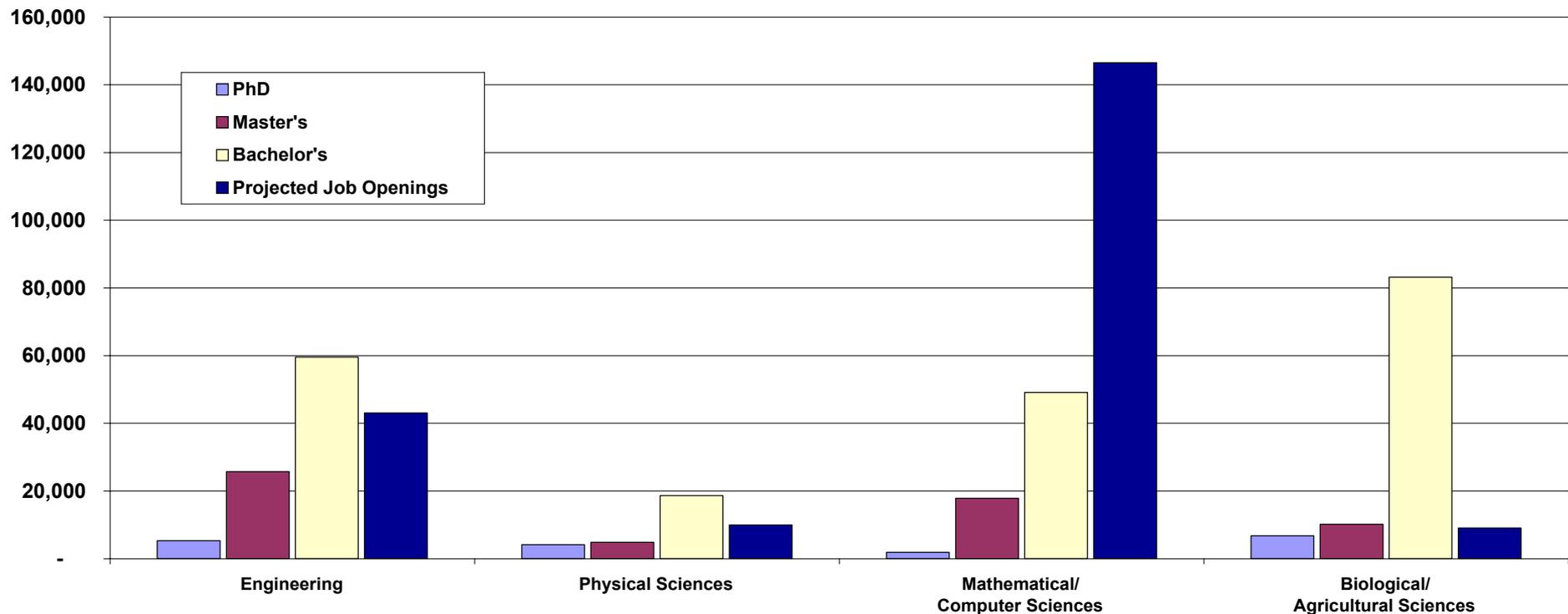
# Bachelor's Degree Production 1986-2000



*... Engineering, Physical Sciences, CS, and Math Down*

# Are we Preparing Students for the Demand?

## Annual Degrees and Job Openings in Broad S&E Fields



## Offshoring Challenge: Why?

- Jobs being sent to India, China, Russia, Estonia, . . .
- Much work is digitized and IT enables long-distance communication.
- Smaller “catch-up” period after technology development.
- Many developing countries have developed infrastructure and educated workforce.
- Wages overseas can be 20% of ours.

## Public and Media Frenzy on Offshoring

- *Business Week*, 2/3/2003:  
*Upscale* jobs are being sent overseas.
- In 2003-2004 fiscal year,  
AFL-CIO says 162K jobs moved, 87K jobs lost  
(4 times Dept. of Labor and Forrester figures).
- Employment Law Alliance, 6/29/2004:  
60% of workers favor penalties against  
companies, 21% would sue if job endangered.

## Other Perspectives

- Offshoring/outsourcing is natural.
- New high-value-added jobs created by innovation.
- Insourcing.
- Some companies stepping back from offshoring (*NY Times*, 4/28/2004; *NetworkWorld*, 7/5/2004).
- Need to better educate students to emphasize team, project management, systems engineering.
- Emphasize links to applications, ability to innovate.

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*Co*  
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*Areas*  
*Linking*  
*and*  
*Extending*  
*Science*

- Bioinformatics
- Climate Change
- Computational Science
- Massive Data
- Membrane Science
- Nanoscience
- Science Education Research