

A Systemic View of the S&T Workforce: From Policy to Institutional Practice to Personal Choice

Overview

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Moderator

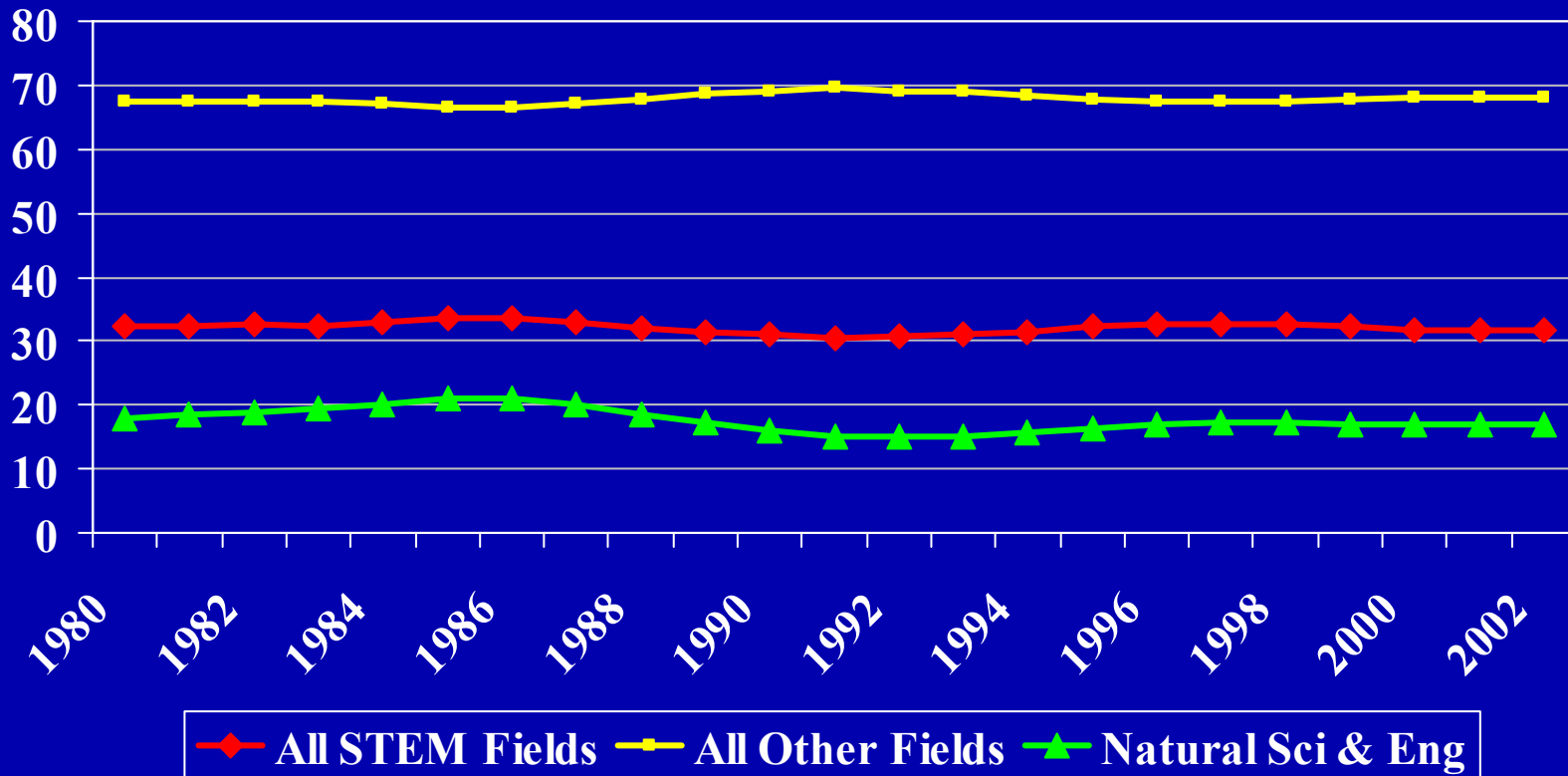
Washington, DC

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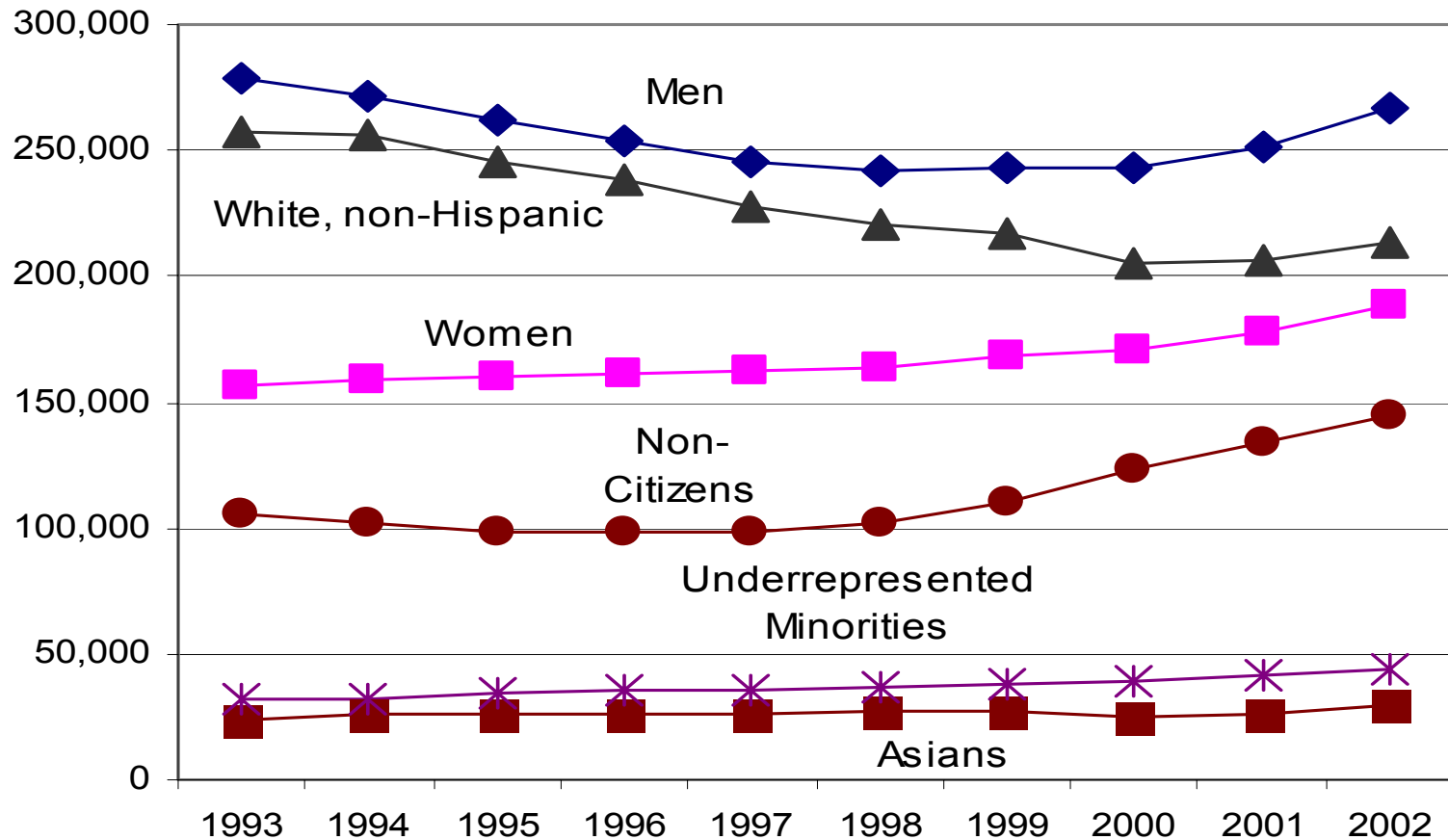
The BEST Challenge: A Perfect Storm in the Making

- U.S. S&E workforce draws on a narrow & declining segment of our population.
- U.S. jobs requiring S&E skills growing at 5% annually compared with 1% growth rate for rest of domestic labor market.
- Since 1975, the U.S. has fallen from 3rd to 17th compared to other countries in proportion of 18-24 year olds earning S&E degrees.
- U.S. student interest in technical disciplines is far off peak levels of the 1980s.
- The international segment of the U.S. technical workforce has increased steeply.
- The United States is not keeping pace with the growth of international S&E capacity, e.g., engineers produced per 10K population.

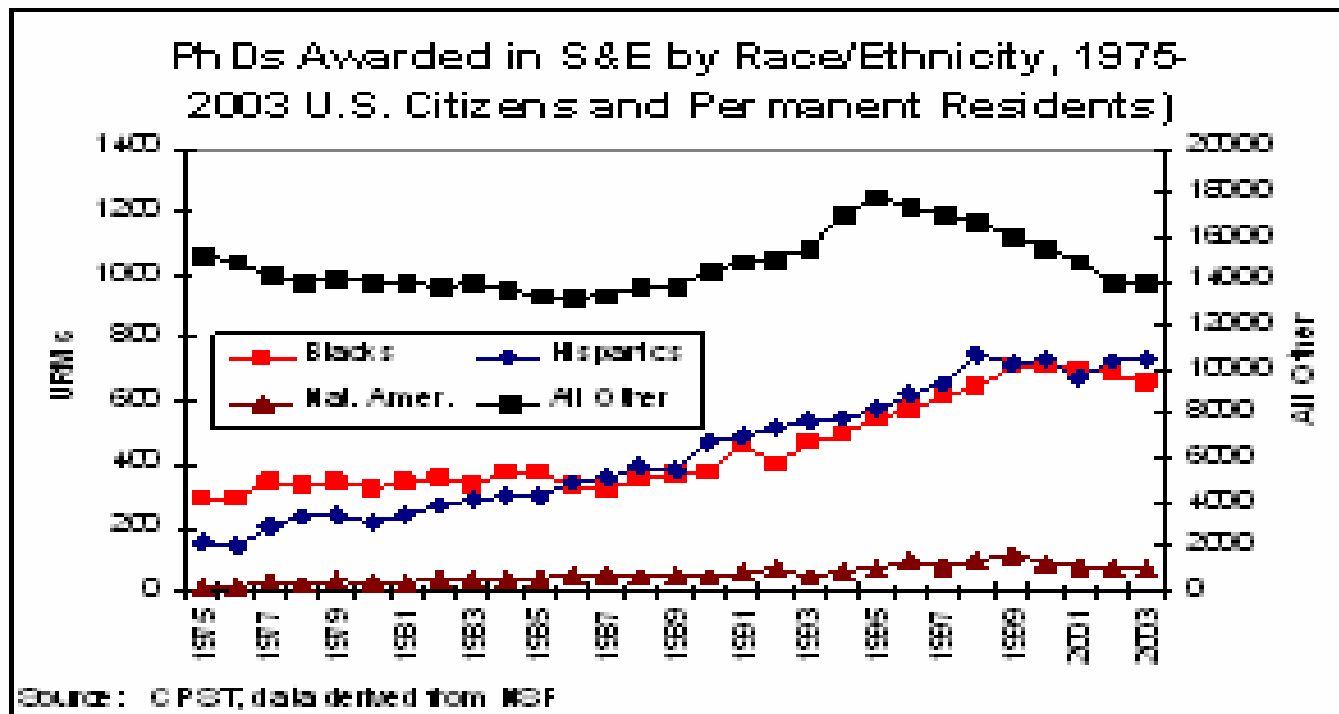
Percentage of Bachelor's Degrees Awarded in STEM and Other Fields, 1980-2002



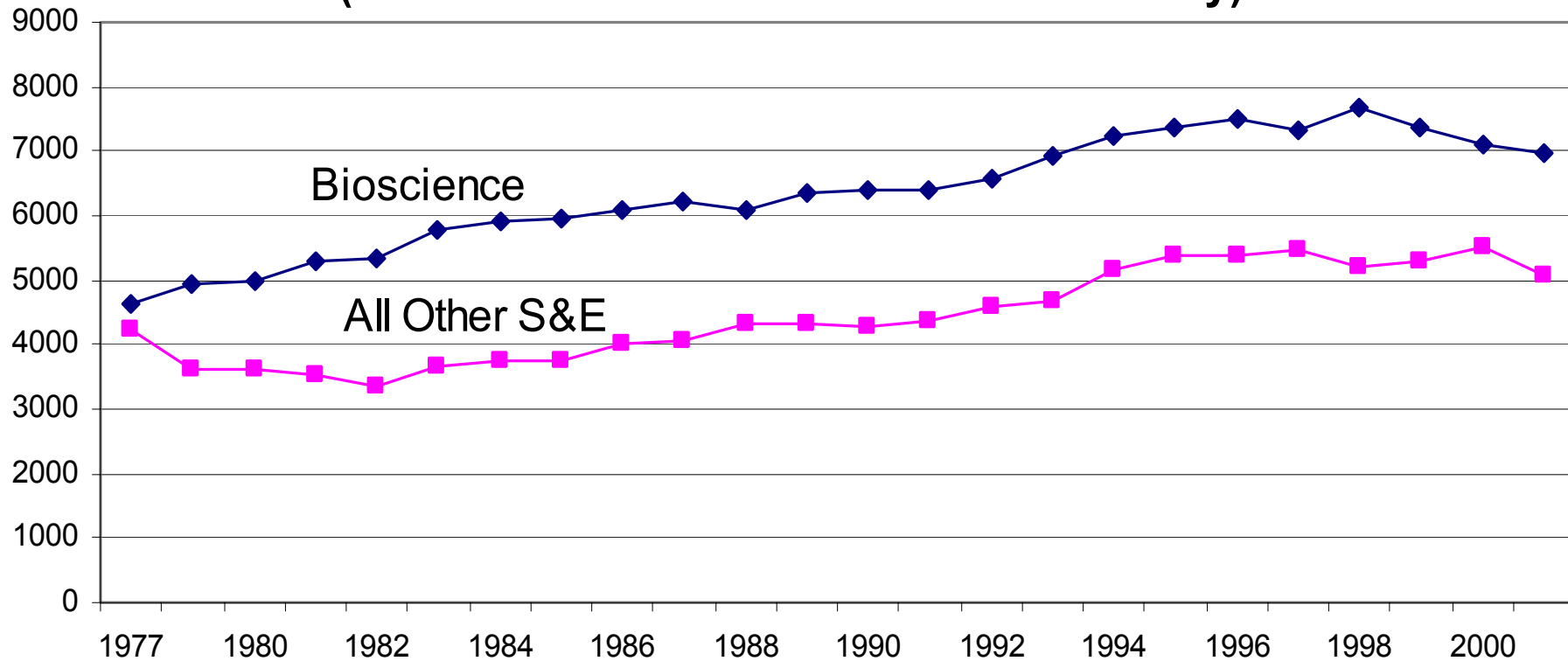
Graduate Enrollment in Science and Engineering, 1993-2002



Source: CPST, data derived from National Science Foundation

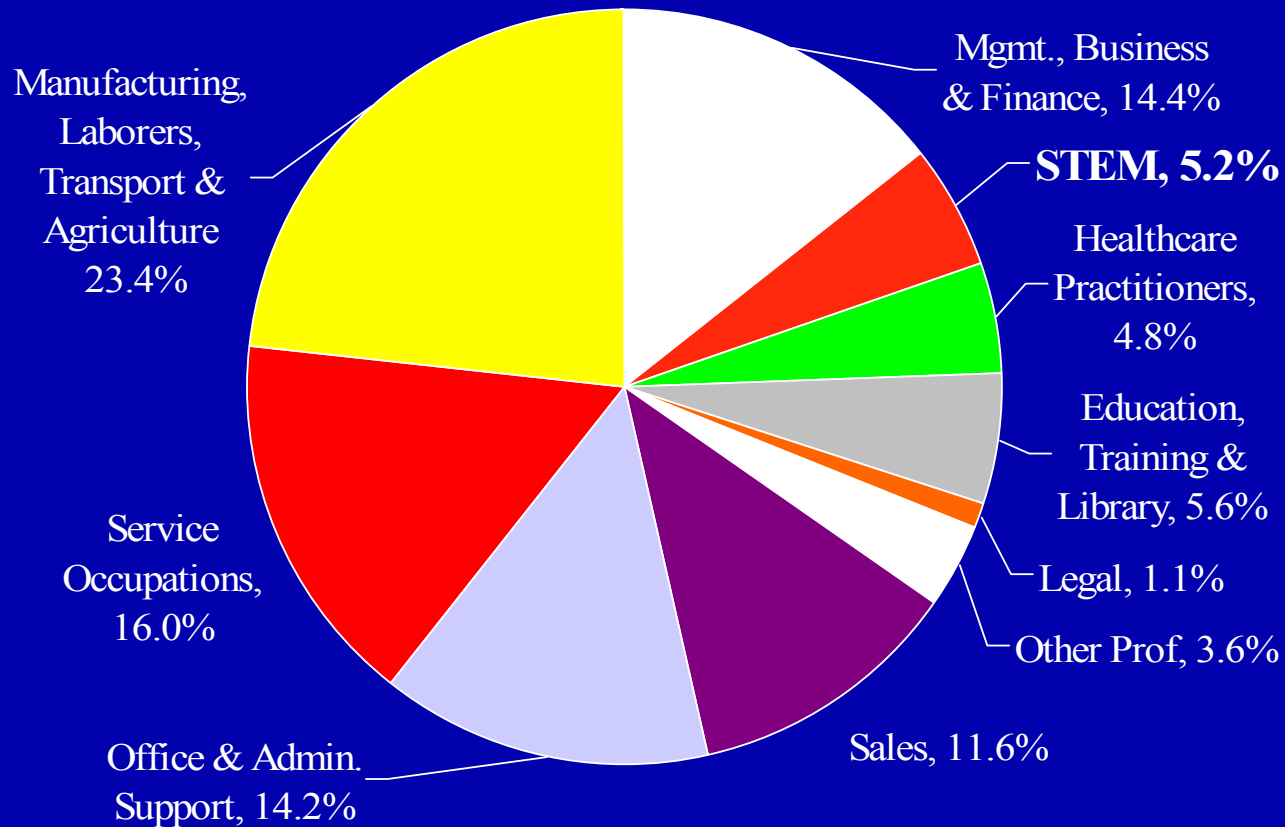


Comparison of Bioscience Postdocs with All Other S&E Postdocs, 1977-2001 (U.S. Citizens & Permanent Residents only)



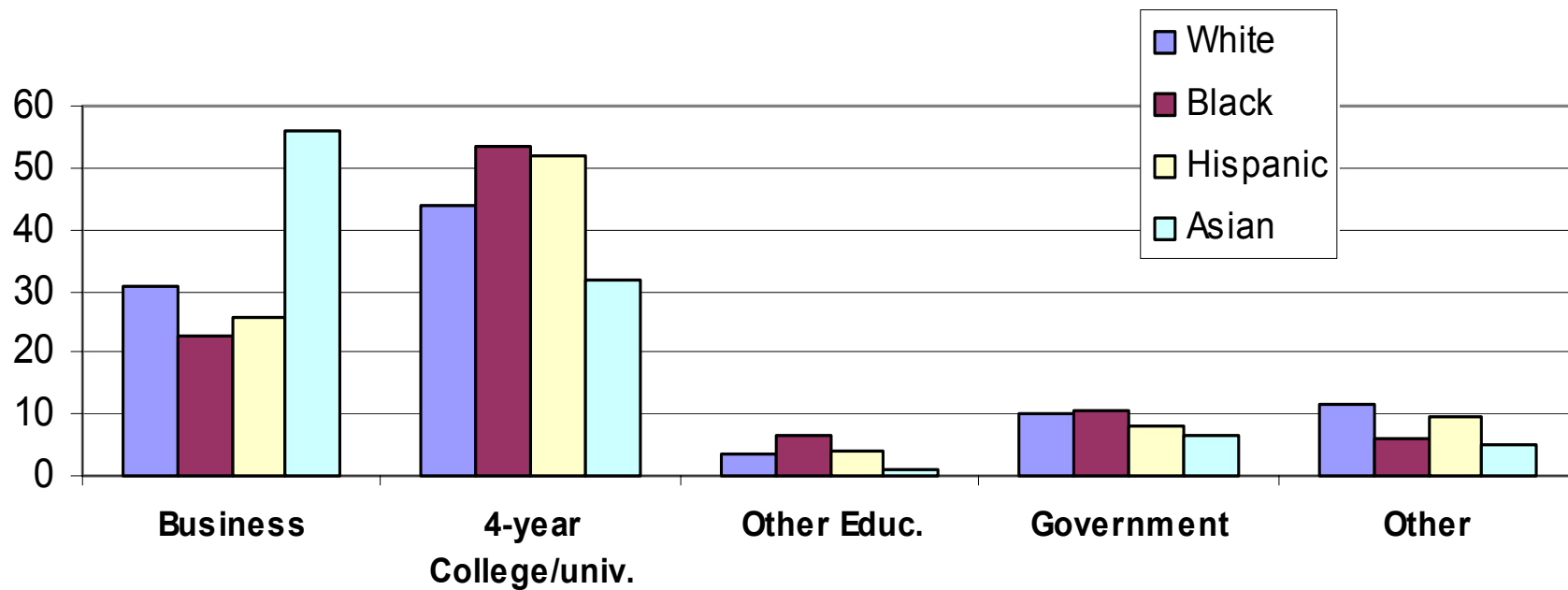
Source: CPST, data derived from NSF, GSS

STEM Workforce as a Percentage of the Total Workforce in the U.S., 2003 (Total Workforce =137,736,000)



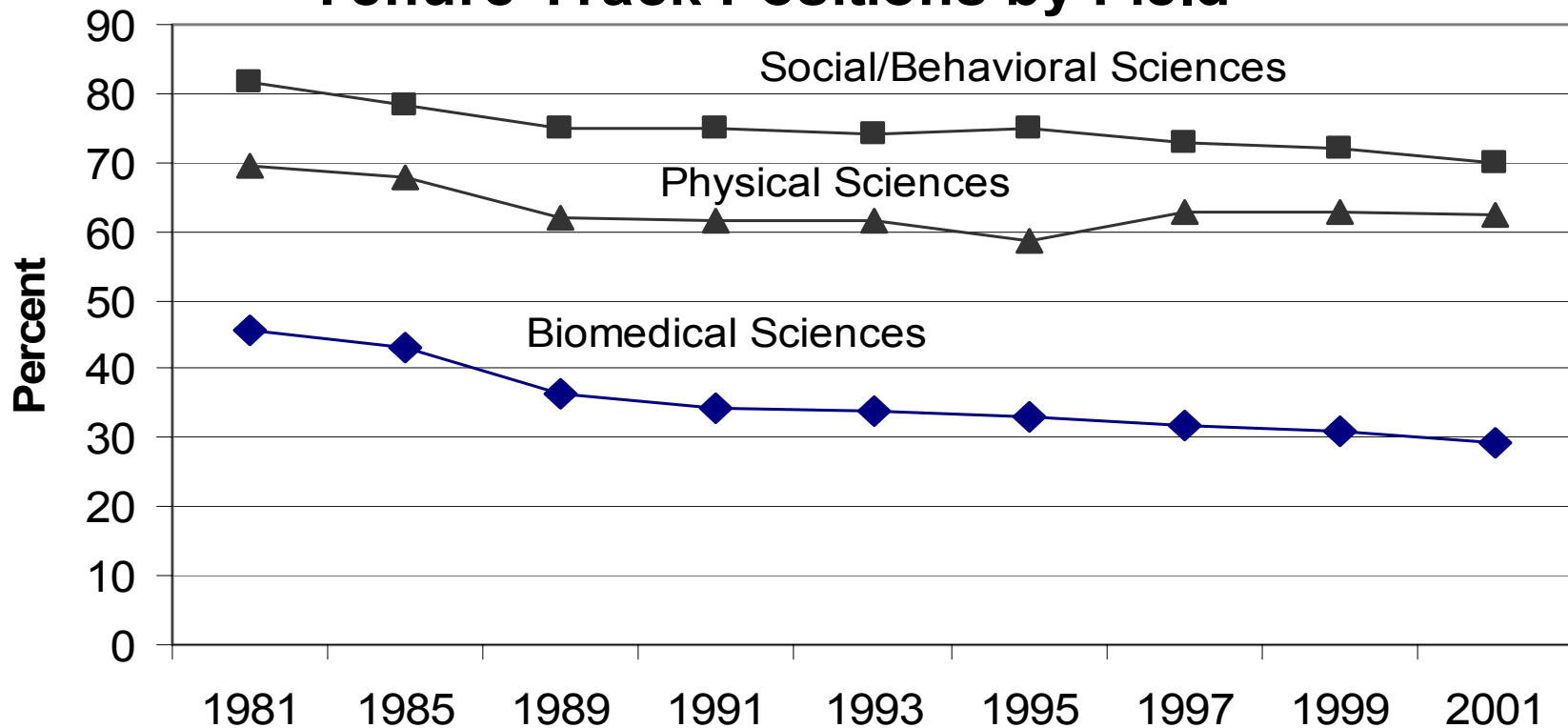
Source: CPST, data derived from U.S. Bureau of Labor Statistics, Current Population Survey

Employment Sector of PhD Scientists and Engineers by Race/Ethnicity, 2001



Source: CPST, data derived from National Science Foundation, SESTAT

Percentage of U.S. PhDs Holding Tenured or Tenure-Track Positions by Field



Source: CPST, data derived from NSF, Survey of Doctorate Recipients

Select Indicators of Persistent Gender Differences in S&E

- Interest in S&E majors, as reflected in *The American Freshman—2004* survey, shows a continuing imbalance in sex ratios—9:1 male in computer science, 6:1 in engineering, and 1.5:1 in physical sciences. Women’s interest outpaces men only in the biological sciences (www.gseis.ucla.edu/heri/heri.html).
- Five out of six engineering students and nine out of 10 engineering professors are male (www.smith.edu).
- In academic settings, “women earn less, hold lower-ranking positions, and are less likely to have tenure.” At four-year colleges and universities, “only 27% of those awarded tenure are women” (www.aauw.org).
- According to NSF, women represented 23% of the federal S&E workforce in 2002, which is less than women’s participation in the total U.S. S&E workforce (www.cpst.org).

Source: *CPST Comments*, March 2005

Issues for Panel Consideration

- Competition for talent: S&T v. law, medicine, business
- Slowing the “pipeline”: Pre-college to workforce barriers (law, culture, practice)
- Preparing, recruiting, and graduating more homegrown talent (esp. women, minorities, & persons w/ disabilities)
- The future role of foreign nationals in U.S. S&T
- Defense needs and constraints: The future is now
- Re-shaping career paths: Degree options (AA, MS, PSM, PhD) and the postdoc appointment