

Women and Girls in Science, Technology & Engineering

United States Department of State

Office of the Senior Coordinator for
International Women's Issues

Office of International Women's Issues

- ▶ Coordinating all foreign policy issues related to the political, economic, and social advancement of women in democracy worldwide.
- ▶ Recognizing the key to democracy is the full and equal participation of women in all realms of society
- ▶ Promote greater awareness of gender-based violence and discrimination,
- ▶ Ensure that women's human rights are considered along with, not segregated from, other human rights in the development of U.S. foreign policy.

Challenges Facing Women Worldwide

- ▶ Gender-based violence (GBV)
 - Problem every country
- ▶ Property/Inheritance Rights
 - Contributes to subordination of women
- ▶ HIV/AIDS
 - Increased risks due to GBV

Power of S&T

- ▶ Society is becoming more science and technology dependent
- ▶ Creates innovations in public health, environment, communication, and transportation.
- ▶ Allows individuals to develop their skills and talent.
- ▶ Jobs in Science and Technology provide the highest incomes

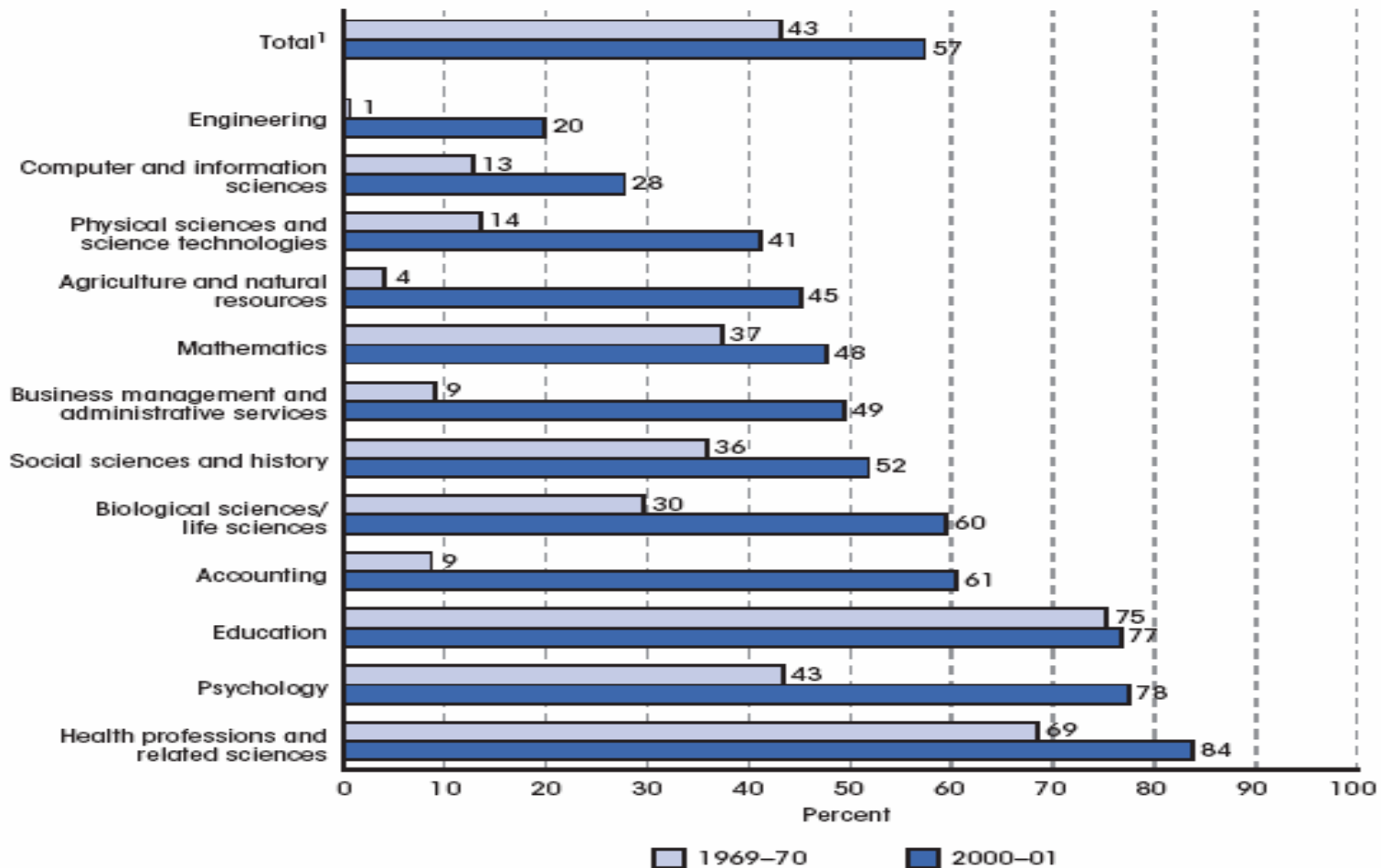
Benefits of Women's Involvement in S&T

- ▶ No society can realize its potential when half its population lacks a strong voice
- ▶ Strengthens economy - competitiveness in global economy
- ▶ Strengthens democracy - increases women's equality

U.S. Statistics on Women in S & T

- ▶ S&E bachelor's degrees awarded to women has increased every year since 1966 (excluding 1988).
- ▶ Women earn substantially more bachelor's degrees in non-S&E fields than men.

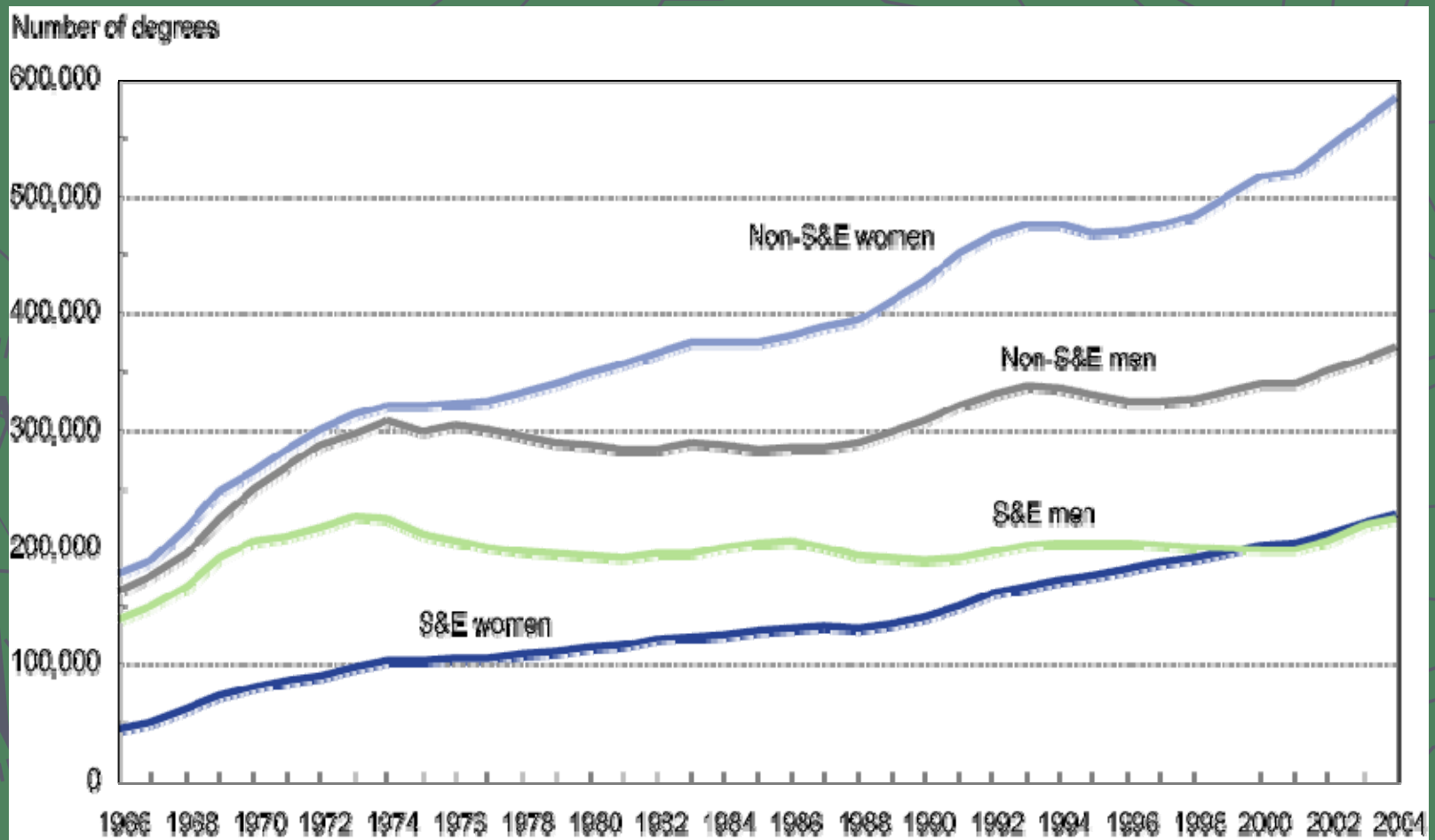
Percent of Bachelor's degrees conferred to females 1969-70 & 2000-01



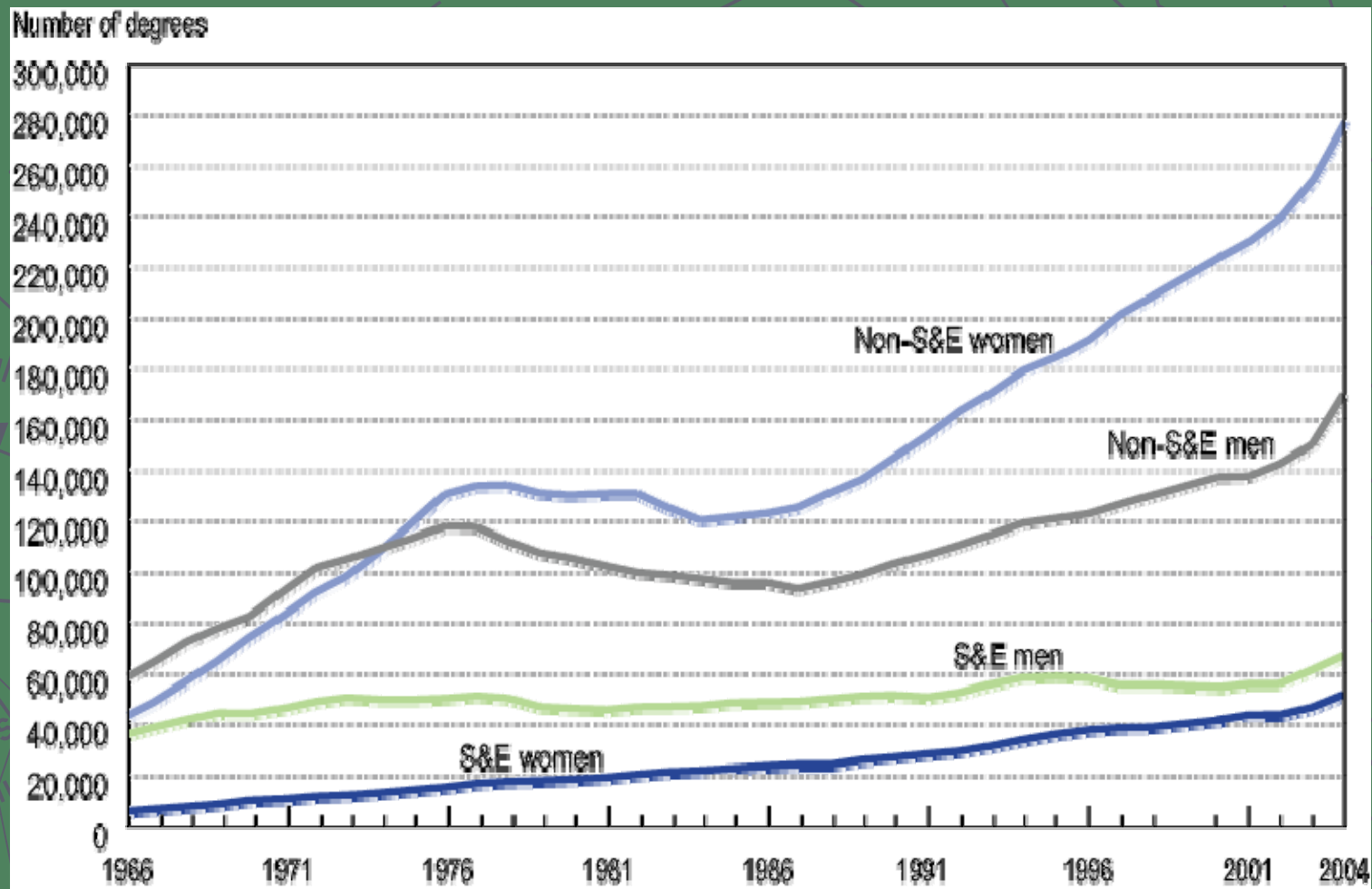
¹Includes other fields of study not shown separately.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Higher Education General Information Survey (HEGIS), "Degrees and Other Formal Awards Conferred Survey;" and Integrated Postsecondary Education Data System, "Completions Survey" (IPEDS-C:01), 2000-01.

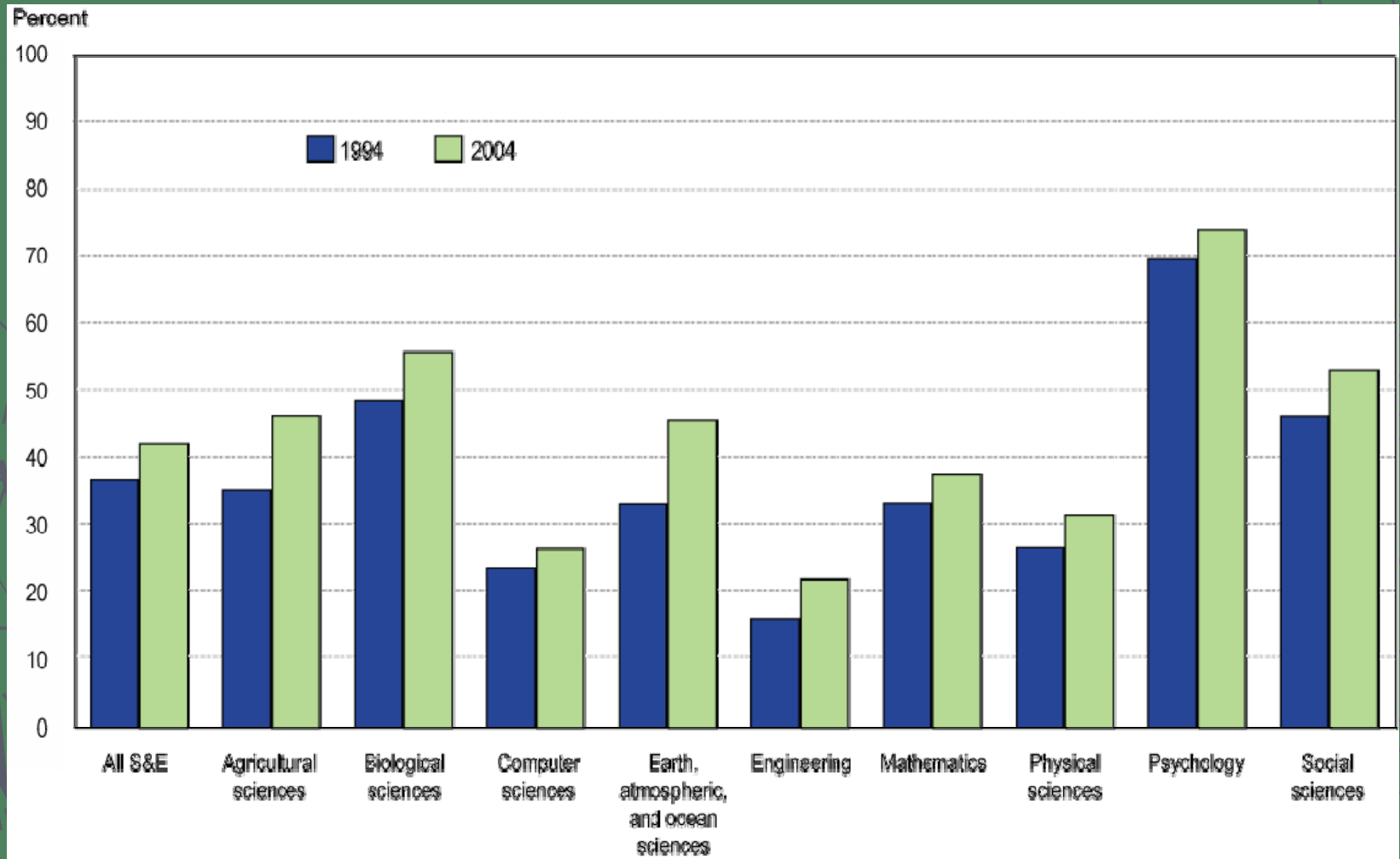
Bachelor's degrees awarded in S&E and non-S&E fields, by sex: 1966–2004



Master's degrees awarded in S&E and non-S&E fields, by sex: 1966–2004



Female share of S&E graduate students, by field: 1994 and 2004



Graduate School

- ▶ Overall the number of women earning doctoral degrees in all fields rose between 1966 and 2004.
- ▶ By 2004, women earned 44 percent of S&E and 60 percent of non-S&E doctoral degrees to U.S.
- ▶ Women made up 74 percent of graduate school enrollment in psychology, 56 percent in biological sciences, and 53 percent in social sciences (2004).
- ▶ Women accounted for 22 percent of graduate students in engineering and 27 percent of graduate students in computer sciences, and approximately 30–45 percent of the graduate students in most other science fields (2004).

▶ SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Graduate Students and Post doctorates in Science and Engineering, 1994 and 2004.

How does educational
achievement translate into
employment success?

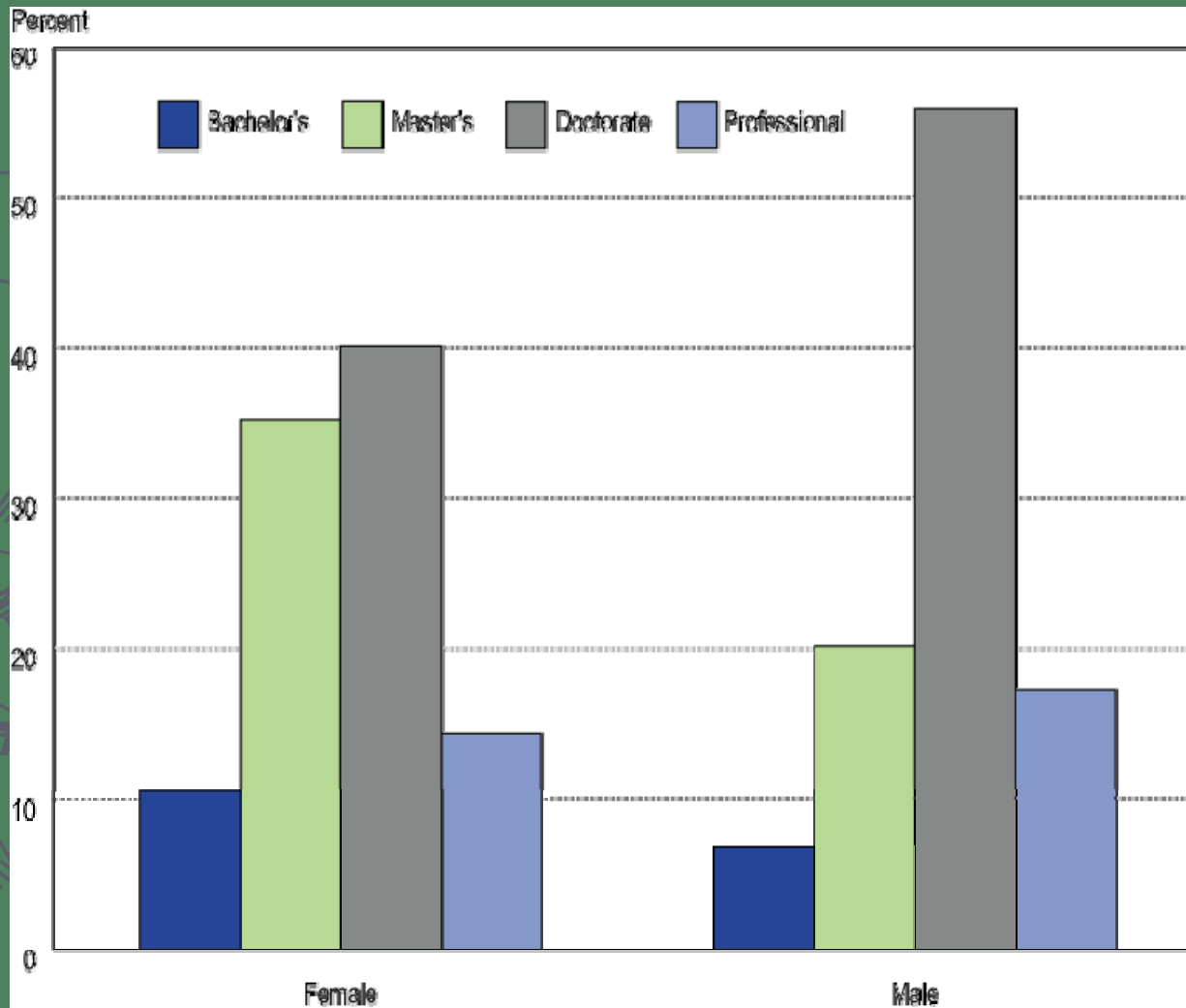


Employment of Women

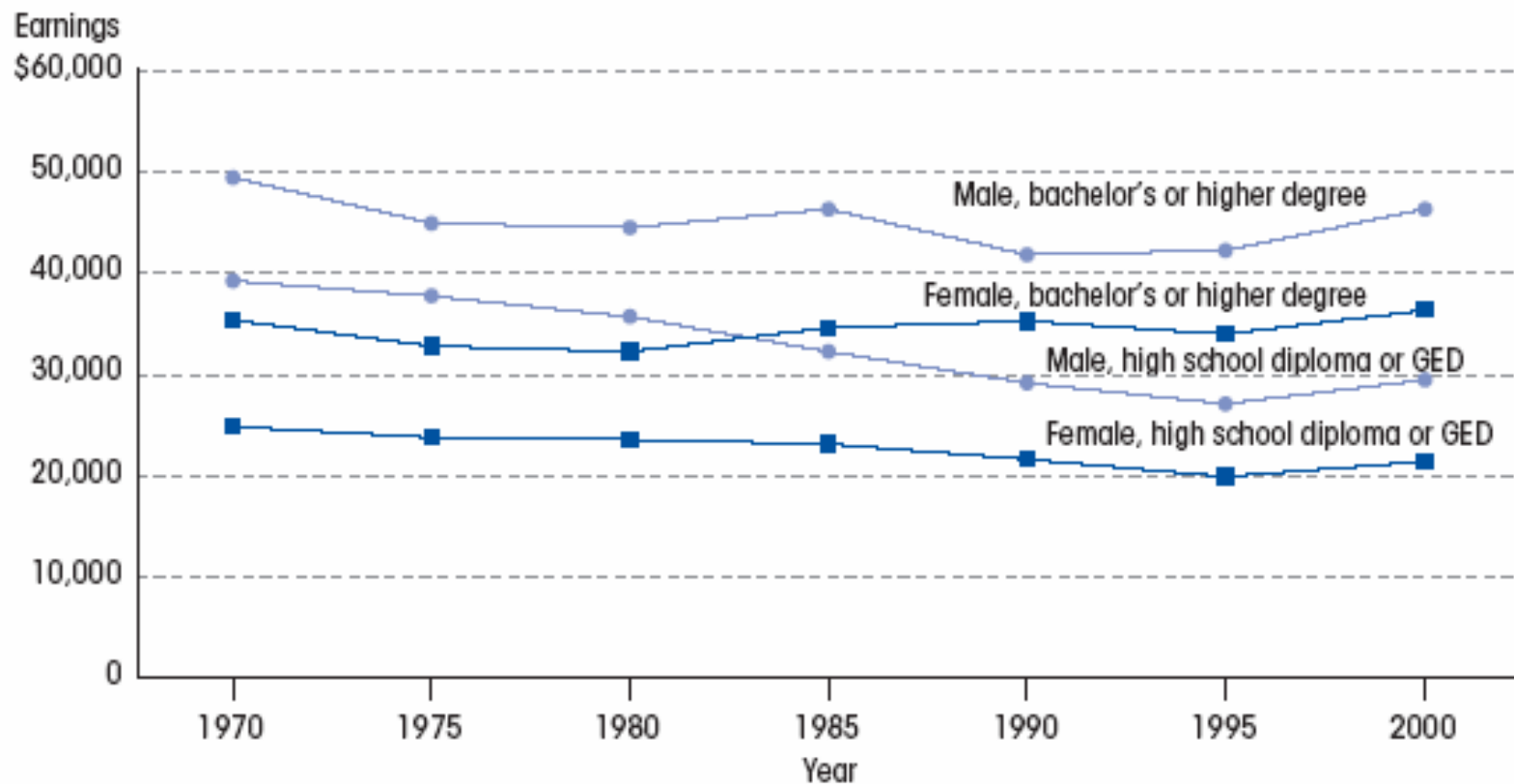
- ▶ Women 25 years and older make 0.79 to every dollar a man earn
- ▶ Women with at least a High School Diploma 0.76
- ▶ Women with a Bachelors degree or higher 0.74 to every dollar a man earns

(US Dept of Labor 2003)

Science and engineering faculty, by sex and highest degree: 2003



Median annual earnings (in constant 2000 US dollars) of full-time year-round wage and salary workers 25 – 34 with HS diploma or GED, or bachelors' or higher degree, by sex



SOURCE: U.S. Department of Commerce, Bureau of the Census, March Current Population Surveys (CPS), various years, unpublished data.

Employment of Women in S&T Faculty

- ▶ Male science and engineering faculty are more likely than their female counterparts to have doctoral degrees.
- ▶ More than half (56 percent) of male S&E faculty have doctoral degrees, compared with 40 percent of female S&E faculty.
- ▶ Thirty-five percent of female S&E faculty, compared with 20 percent of male S&E faculty, have a master's as the highest degree.

Median Salaries 2003

TABLE H-16. Median annual salary of scientists and engineers employed full time, by highest degree, broad occupation, age group, and sex: 2003

(Dollars)

Occupation and age (years)	All degrees			Bachelor's			Master's			Doctorate		
	Both sexes	Female	Male	Both sexes	Female	Male	Both sexes	Female	Male	Both sexes	Female	Male
All occupations	60,000	49,000	70,000	53,600	44,900	62,000	63,100	52,000	74,000	77,000	63,000	83,000
29 and younger	40,000	38,000	45,000	39,000	35,000	45,000	45,000	41,000	50,000	44,000	40,000	53,000
30-39	58,500	48,700	65,000	54,000	45,000	60,000	61,000	49,000	70,000	62,400	55,000	70,000
40-49	68,000	54,000	78,500	60,900	50,000	70,000	70,000	56,600	80,000	78,000	65,000	83,500
50 and older	65,000	52,000	75,000	57,000	45,200	65,000	65,000	55,000	73,500	86,500	70,000	90,000
S&E occupations	69,500	58,000	72,000	65,000	55,000	69,500	72,100	60,000	78,000	75,000	61,000	80,000
29 and younger	49,000	43,000	52,000	48,000	42,000	51,000	52,000	45,800	58,000	40,000	40,000	53,600
30-39	65,000	59,000	68,500	65,000	59,000	66,000	70,000	60,000	75,000	60,500	54,000	65,000
40-49	75,000	65,000	80,000	73,400	63,000	75,000	80,000	65,400	84,100	75,300	65,000	80,000
50 and older	76,000	62,000	80,000	73,000	60,000	75,000	76,000	60,000	80,000	85,000	70,000	90,000
Scientist	65,000	56,000	70,000	62,000	52,000	66,200	69,000	57,000	75,000	71,400	60,000	76,000
29 and younger	45,000	40,000	50,000	44,400	40,000	50,000	50,000	43,500	56,500	40,000	40,000	45,000
30-39	64,000	56,000	67,500	63,000	56,000	65,000	68,000	58,000	75,000	57,000	53,000	60,000
40-49	72,000	63,000	76,000	70,000	62,000	74,000	75,000	61,800	80,000	72,500	64,000	76,200
50 and older	72,000	61,900	77,000	68,900	60,000	70,000	70,000	60,000	75,000	82,000	70,000	86,000

Employed PhD's in Academia

TABLE H-27. S&E doctorate holders employed in universities and 4-year colleges, by occupation, sex, years since doctorate, and tenure status: 2003

Occupation, sex, and years since doctorate	Total	Tenured	Not tenured		Tenure not applicable
			On tenure track	Not on tenure track	
All occupations	385,200	169,100	66,300	48,500	101,300
Female	122,200	40,600	23,400	20,400	37,800
Fewer than 10	61,900	6,700	19,200	10,600	25,400
10-19	35,500	18,500	3,800	5,200	8,000
20-29	18,500	11,300	400	3,400	3,500
30 or more	6,300	4,000	S	1,300	900
Male	263,000	128,500	42,900	28,000	63,600
Fewer than 10	92,400	12,600	31,800	12,200	35,800
10-19	65,400	38,300	8,800	7,300	11,100
20-29	57,000	41,100	1,800	4,700	9,300
30 or more	48,100	36,500	400	3,800	7,400
S&E occupations	294,800	132,400	51,900	36,300	74,300
Female	90,400	30,000	18,200	14,500	27,700
Fewer than 10	47,600	5,700	14,500	7,700	19,800
10-19	26,500	13,200	3,300	4,600	5,300
20-29	12,000	8,100	400	1,600	1,900
30 or more	4,300	3,100	S	600	600
Male	204,400	102,400	33,700	21,800	46,600
Fewer than 10	70,000	9,300	24,500	10,100	26,100
10-19	54,000	31,400	7,400	6,000	9,200
20-29	43,400	32,800	1,300	2,900	6,300
30 or more	37,000	29,000	400	2,800	4,900
Scientist	267,100	117,900	46,400	34,300	68,600
Female	87,100	29,200	17,000	14,300	26,700
Fewer than 10	45,200	5,500	13,400	7,500	18,900
10-19	25,700	12,600	3,300	4,600	5,300
20-29	11,900	8,000	400	1,600	1,900
30 or more	4,300	3,100	S	600	600
Male	180,000	88,700	29,400	20,000	41,900
Fewer than 10	61,800	8,000	21,400	9,000	23,400
10-19	47,500	26,700	6,500	5,700	8,600
20-29	38,000	28,400	1,200	2,900	5,600
30 or more	32,600	25,600	300	2,500	4,300

Employed Scientists by highest degree and sex

TABLE H-5. Employed scientists and engineers, by occupation, highest degree level, and sex: 2003

Occupation	All degrees			Bachelor's			Master's			Doctorate		
	Both sexes	Female	Male	Both sexes	Female	Male	Both sexes	Female	Male	Both sexes	Female	Male
All occupations	18,019,400	7,582,200	10,437,200	10,484,300	4,575,300	5,909,100	4,976,800	2,221,900	2,754,900	883,700	256,900	626,900
S&E occupations	4,927,500	1,330,500	3,597,100	2,799,200	696,000	2,103,200	1,453,300	437,000	1,016,200	581,800	162,200	419,600

Barriers to Women Advancing in S&T Careers

- ▶ NSF Survey of women ADVANCE Awardees (an award recognizing individuals for their work in S&T fields) obstacles identified :
 - ▶ Effective balance between work and family
 - ▶ Discrimination - women felt they had to work harder to achieve equal amount of status
 - ▶ Lack of mentoring
 - ▶ In 1995, only 10% of tenured professors in science and technology were women.
- ▶ Women Leaders in S&T: Kuwait Conference - Jan. 2007
 - ▶ 150 Mostly Arab women & US women participants
 - ▶ Same barriers discussed

Conclusion

- ▶ Women are starting to reach parity in the US at bachelor's degree level
- ▶ Education is not being translated into jobs
- ▶ What types of changes must we do as a society to change this?