Diversity: Path to Change

UWADVANCE

National Leadership Workshop for SEM Department Chairs and Emerging Leaders

- Statistics -- we are number people
- Experiments -- we are scientists
- Stories -- we are human
- Policy -- we are leaders

Marjorie Olmstead
UW Department of Physics
olmstd@u.washington.edu
http://courses.washington.edu/wost/Win04

Workshop on Faculty Diversity

- National Data on Faculty Composition
  - Donna Nelson, University of Oklahoma
- Studies of the “Playing Field”
  - Implicit assumptions are there
- Personal Comments
  - The reality of small numbers
- Advice for Chairs
  - Small things can make big improvements

Faculty Diversity Study

- Donna Nelson, U. Oklahoma Chemistry
- 14 Fields -- 10 UW-ADVANCE fields
- Survey 50 top departments
  - Ranked by research expenditures in 1999-2000
  - Biased toward large depts supporting students
- Faculty composition by race and gender
- Compare to Ph.D. Data from NSF

Example Data: Physics Faculty

http://cheminfo.chem.ou.edu/faculty/djn/diversity/top50.html

Table 2. Tenured/Tenure-Track Faculty at the "Top 50" Physics Departments by Race/Ethnicity, by Gender, and by Rank (FY 2002)*

University	White				Black				Hispanic				Asian				Native Am.				Total
	Full	Assoc	Asst	Tot	Full	Assoc	Asst	Tot	Full	Assoc	Asst	Tot	Full	Assoc	Asst	Tot	Full	Assoc	Asst	Tot	
Johns Hopkins U	24.002	-	3	27.002	-	-	-	0	-	-	-	0	4	1	-	5	-	-	-	0	32.002
MA Institute of Tech	50.004	5	11.002	66.006	-	-	-	0	-	-	-	0	2	2	6.002	10.002	-	-	-	0	76.008
U CA Berkeley	30.002	6	5	41.002	-	-	-	0	1	-	-	1	9	2.001	1	12.001	-	-	-	0	54.003
California Inst of Tech	41	-	2.001	43.001	-	-	-	0	-	-	-	0	2.001	1	-	3.001	-	-	-	0	46.002
U TX at Austin**	31	8	2	41	-	-	-	0	1	-	1.001	2.001	3	2	1	6	-	-	-	0	49.001
Cornell University	30.001	6.001	4	40.002	-	-	-	0	-	1	-	1	2	-	1.001	3.001	-	-	-	0	44.003
Florida State Unive																					43.003
U MD at College P																					72.004
Michigan State U																					50
U CA Los Angeles																					63.005
U Illinois Urbana-C																					58.004
U WI-Madison																					48.005
Indiana University																					38.002
U of Alaska Fairbe																					15.001
Pennsylvania State																					46.004
SUNY at Stony Bro																					61.002
Princeton Universi																					39.003
U CA San Diego**																					33.002
U CA Santa Barbar																					38.005
U of Pennsylvania	21.002	5	5	31.002	-	1	-	1	-	-	-	0	1	1.001	3	5.001	-	-	-	0	37.003
U of Washington	38.005	2	7.001	47.004	-	-	-	0	1	-	-	1	-	-	-	0	-	-	-	0	48.004
Duke University	11	7.001	4	22.001	1	-	-	1	-	-	-	0	2	-	4.001	6.001	-	-	-	0	29.002
Vanderbilt University																					25.001
NC State University																					9.005
Rutgers the State U N																					2.005
Georgia Inst of Tech																					8.001
Yale University																					2.001
Harvard University																					4.004
University of Colorad																					4.003
U of Iowa																					9.002
Ohio State University																					3.002
U of Central Florida**																					7.002
Purdue University																					4.002
University of Chicag																					7.001
Texas A&M Universi																					0.001
University of Florida	8	3	1	12	-	-	-	0	1	1	-	2	-	1	-	1	-	-	-	0	15
U of Tennessee System	22.001	4	-	26.001	1	-	-	1	1	-	-	1	-	1	-	1	-	-	-	0	29.001
Univ of Minnesota	29.002	27	7	63.002	-	-	-	0	1	1	-	2	1	1	1	3	-	-	-	0	68.002
U of NC Chapel Hill	16.002	3	2	21.002	-	-	-	0	1	-	-	1	2	4	1	7	-	-	-	0	29.002
U MA Amherst	21.001	5	3	29.001	-	-	-	0	1	-	-	1	3	-	1	4	-	-	-	0	34.001
U CA Irvine	25.001	1	5.001	31.002	-	-	-	0	-	-	-	0	4	1.001	2	7.001	-	-	-	0	38.003
Louisiana St U System	22	7	4	33	-	-	-	0	1	-	1.001	2.001	4.004	-	-	4.004	-	-	-	0	39.005
U Alabama Huntsville	12.001	1	1	14.001	-	-	-	0	-	-	-	0	1	1	1	3	-	-	-	0	17.001
University of Rochester	17.001	2.001	3.001	22.003	-	-	-	0	-	-	-	0	3	-	1	4	-	-	-	0	26.003
SUNY at Albany	5.001	1	2.001	8.002	-	-	-	0	-	1	1	2	7	-	1	8	-	-	-	0	18.002
University of Michigan	34.002	7.002	7	48.004	1	-	2	3	1	1	1	3	2	1	1	4	-	-	-	0	58.004
Univ of New Mexico	15	8.003	2	25.003	-	-	-	0	-	-	-	0	3	-	-	3	-	-	-	0	28.003
Kansas State University	15	1	2.001	18.001	-	-	-	0	-	-	-	0	4.001	3.001	1	8.002	-	-	-	0	26.003
Wayne State University	11.001	6	6	23.001	-	-	-	0	-	-	-	0	3.001	1	-	4.001	-	-	-	0	29.002
U CA Santa Cruz	16.001	2.001	-	18.002	-	-	-	0	-	-	-	0	-	1	-	1	-	-	-	0	19.002
Physics Total	1268.061	298.021	209.019	1715.101	6	2	4	12	22.003	6	10.005	38.008	135.011	41.006	46.006	222.023	1	0	0	1	1988.132
Percent within race	74%	14%	12%	100%	50%	17%	33%	100%	58%	16%	26%	100%	61%	18%	21%	100%	100%	0%	0%	100%	
Percent of grand total	63.8%	12.0%	10.5%	86.3%	0.30%	0.10%	0.20%	0.60%	1.11%	0.30%	0.50%	1.91%	6.79%	2.06%	2.31%	11.17%	0.05%	0%	0%	0.05%	100%
Females in column	4.8%	8.8%	9.1%	5.9%	0%	0%	0%	0%	9.1%	0.0%	30.0%	18.4%	8.1%	14.6%	13.0%	10.4%	0%	0%	0%	0%	6.6%

*According to physics research expenditures FY1999, NSF; numbers after decimals designate females. **Declined to participate; data are from other sources. ***CRECL data are not included.
Reference: "The Nelson Diversity Surveys" Nelson, D. J.: Norman, OK, 2002; http://cheminfo.chem.ou.edu/faculty/djn/diversity/top50.html

UW 2002: Full Professor: 35 WM, 3 WF, 1 HM
Associate Professor: 2 WM
Assistant Professor: 6 WM, 1 WF

UW 2005: Full Professor: 33 WM, 3 WF, 2 HM
Associate Professor: 4 WM, 1 WF, 1 AM
Assistant Professor: 3 WM

Example Data: Physics Faculty

http://cheminfo.chem.ou.edu/faculty/djn/diversity/top50.html

Women of Color Hidden in Statistics

50 Departments: 1,988 Faculty in 2002

132 Women (6.6%); 263 Minorities (13%); 31 Women of Color (1.5%)

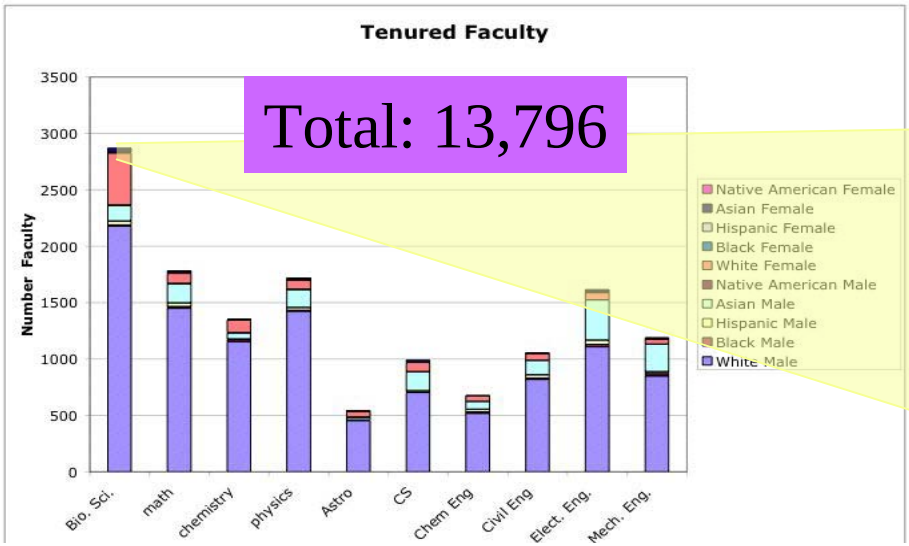
Full Professor: 1207/61 WM/WF; 6/**0** BM/**BF**; 19/**3** HM/**HF**; 124/**11** AM/**AF**; **1/0 NAM/NAF**

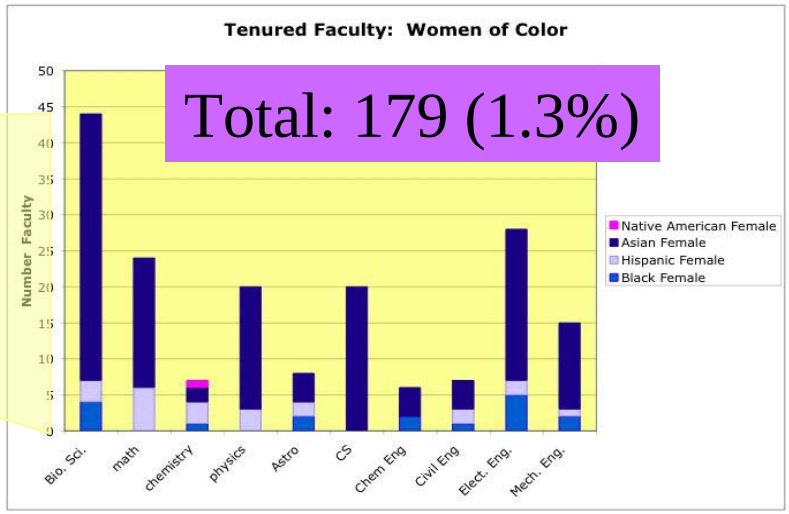
Assoc. Professor: 207/21 WM/WF; 2/**0** BM/**BF**; 6/**0** HM/**HF**; 35/**6** AM/**AF**; **0/0 NAM/NAF**

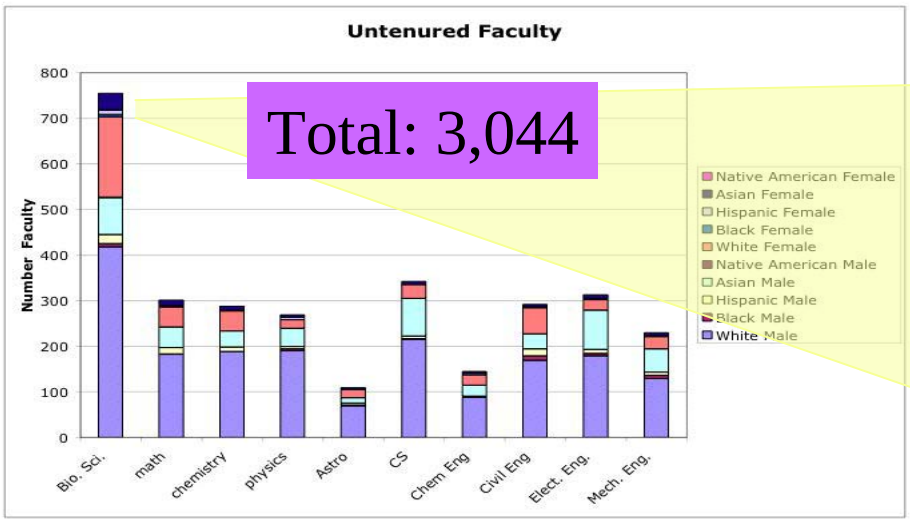
Asst. Professor: 190/19 WM/WF; 4/**0** BM/**BF**; 5/**5** HM/**HF**; 40/**6** AM/**AF**; **0/0 NAM/NAF**

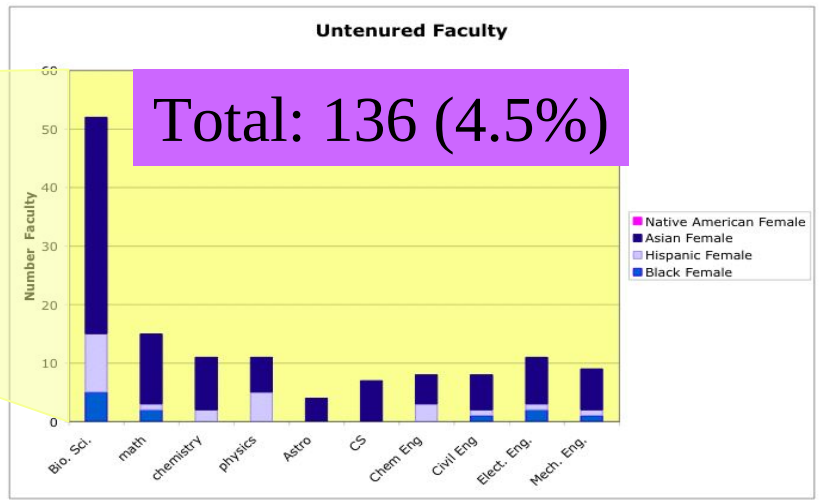
Reference: "The Nelson Diversity Surveys" Nelson, D. J.: Norman, OK, 2002; http://cheminfo.chem.ou.edu/faculty/djn/diversity/top50.html

10 Fields, 500 Departments

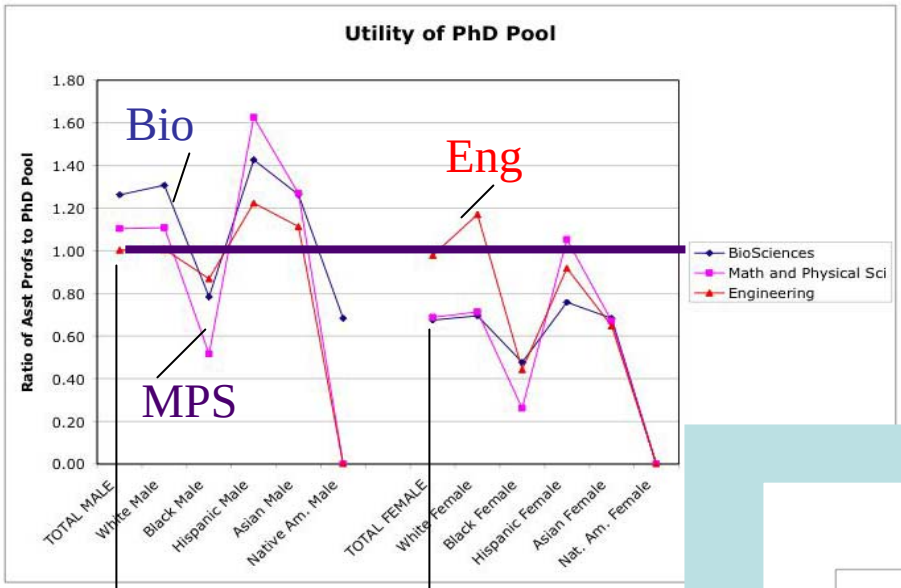








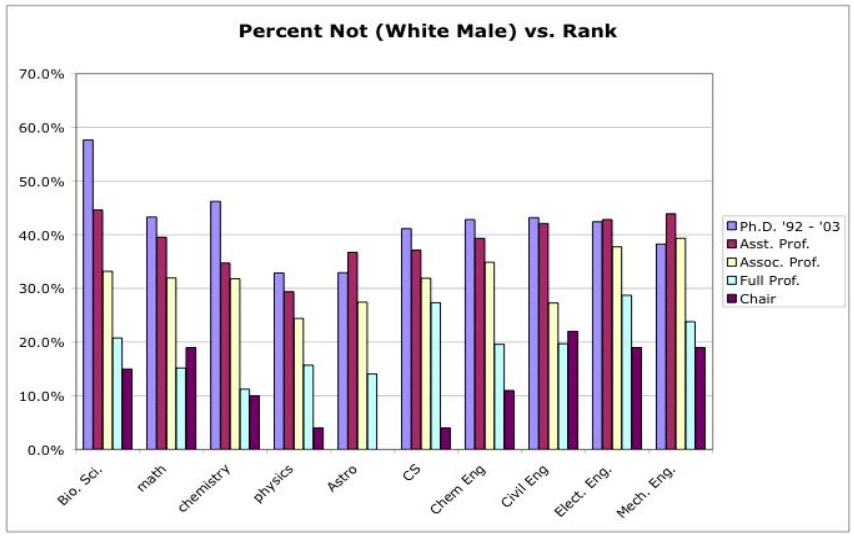
Representation Declines with Rank



All Men 1.17

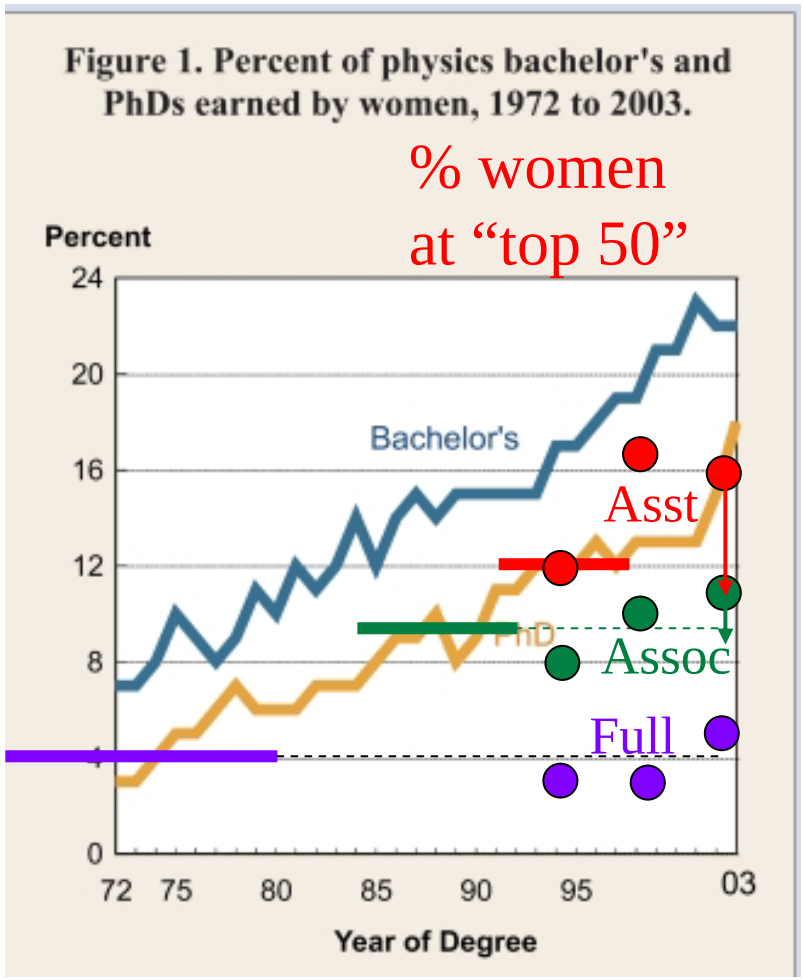
All Women 0.63

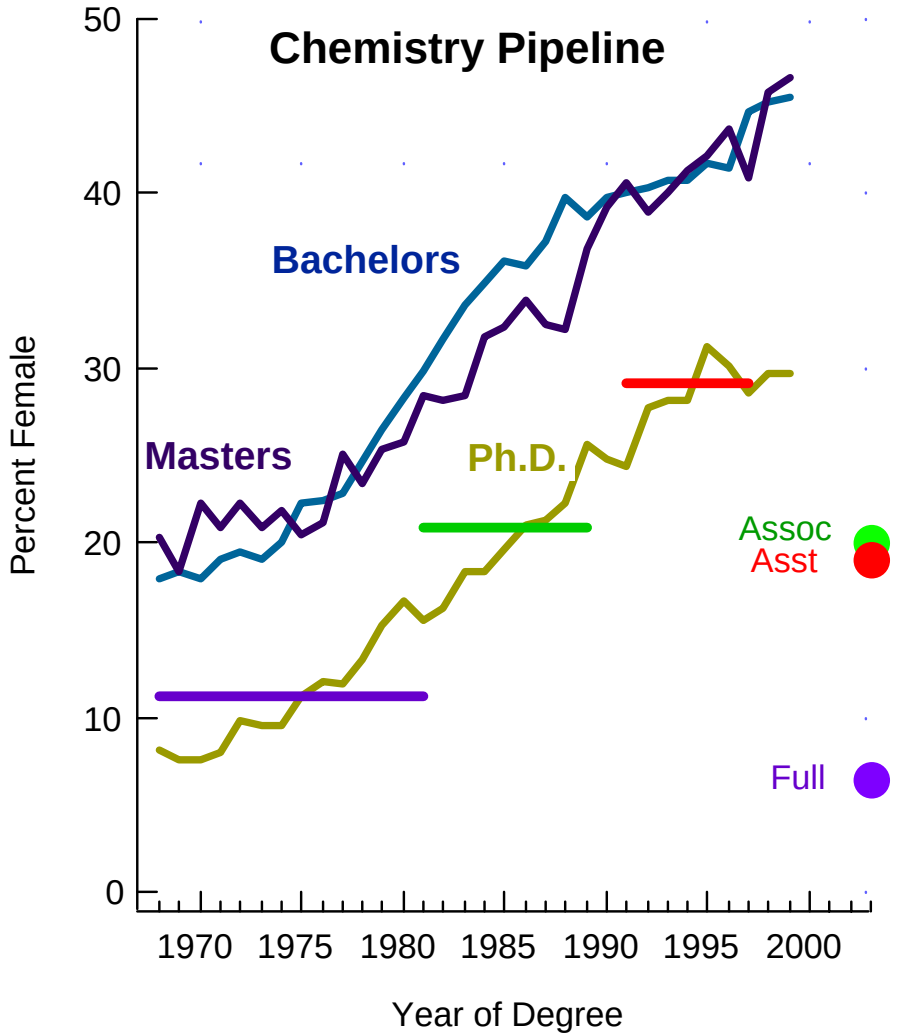
- Women nearly HALF as likely to become professors
- Few Blacks, No Native Americans
- Foreign Asians and Hispanics increase ratio: US born still underrepresented on faculty



Physics vs. Chemistry Pipeline

- AIP Study on Academic Women in Physics

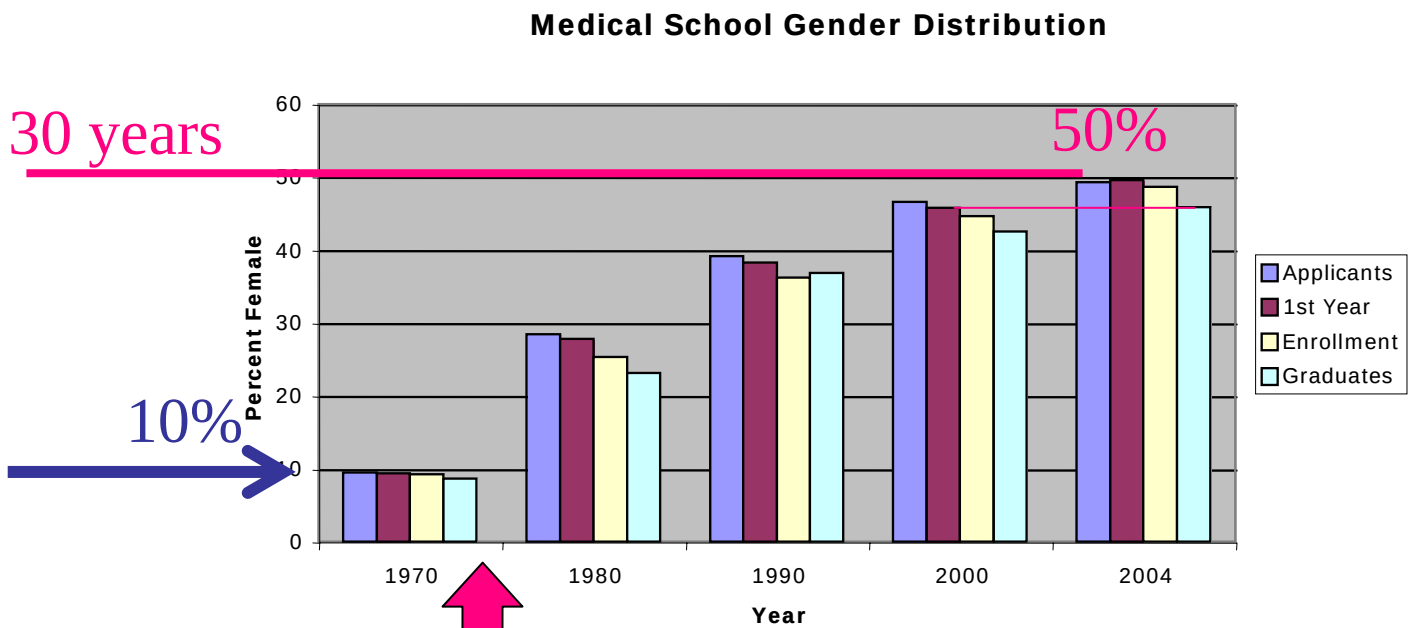




Physics women 2x as likely to be at UG Institutions (14% vs. 7% faculty)

Why so Few?

- MYTH: "It's THEIR fault -- women just don't apply."
- REALITY: "My grad school experience was so awful I just want to get out of there."
- Example of Change: Medical Schools after Title IX



Widely Practiced

10% Quota

Matriculation rate = Applicant rate

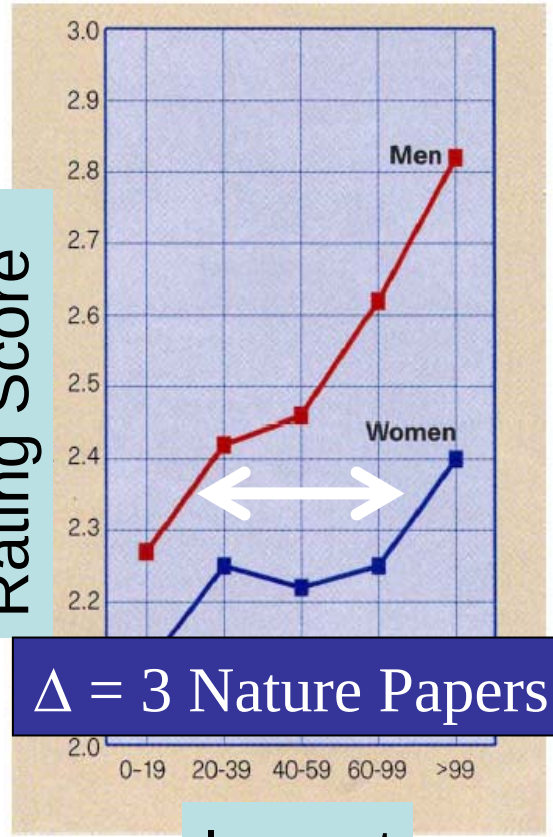
1972 Law -- Education Gender Discrimination Made Illegal

Tilted Playing Field

- Large body of research shows:
  Implicit Assumptions Impact Evaluation
- Gender Bias and Research Papers
  - Paludi and Bauer (Sex Roles, 1983)

Reviewer (1-5, 1 top)	John T. [illegible]	Joan T. McKay	J. T. McKay
Male	1.9	3.0	2.7
Female	2.3	3.0	2.6

- Gender Bias and Post-Doc Applications
  - Wenerås and Wold (Nature, 1997)
- Gender Bias and Performance Evaluation
  - Orchestra tryouts behind curtain
  - Stereotype threat on exam performance



Δ = 3 Nature Papers

Figure 1 The me… given to male (red squar… squares) applicants by the MRC reviewers as a function of their scientific productivity, measured as total impact. One impact point equals one paper published in a journal with an impact factor of 1. (See text for further explanation.)

(Implicit) Discrimination

- Lower expectations
- Uneven evaluation
- Narrow view of excellence
- Exclusion from informal networks
- Other people feel uncomfortable
- **Accumulation of Disadvantage**

$$\left(\frac{0.49}{0.51}\right)^{10} = \frac{2}{3}; \quad \left(\frac{0.48}{0.52}\right)^{8} = \frac{1}{2}$$

Personal Observations

- Small numbers mean everybody counts
  - UW Physics nearly lost 60% of women in one quarter
  - Physics PhDs -- 12 years (‘92–’03): 8,261 total
    - — 2 Native American Women
    - —21 Black Women
    - —31 Hispanic American Women
- Each person must consciously confront their implicit assumptions
  - Grew up in 99 % white suburb
  - Adult before I knew professional, educated minorities
- Scientific and educational enterprise requires trust
  - Different cultural expectations must be dealt with head on

Good Chairs Make a Difference

- Take ownership of the “problem” to create a public, inclusive climate for students and faculty
- Consciously and publicly counter implicit assumptions and accumulated disadvantage
- Set transparent and inclusive criteria and processes for hiring, promotion, salary and resources.
- Give women and minorities assignments to gain leadership skills (both scientific and administrative)
- Have all faculty actively mentor and recruit minority students to the profession. One more/year is significant.
- Compare attitudes of 1st and 5th year grad students -- do they still want to be academics? Is there a gender and/or ethnicity difference in the response? Find out WHY.

Diversity: Path to Change

UWADVANCE

National Leadership Workshop for SEM Department Chairs and Emerging Leaders

- Statistics -- we are number people
- Experiments -- we are scientists
- Stories -- we are human
- Policy -- we are leaders

To access course readings:
Login: womensci Password: curie1903

Marjorie Olmstead
UW Department of Physics
olmstd@u.washington.edu
http://courses.washington.edu/wost/Win04