# Welcome to the PowerHour

- Brief overview of the the problem (10 mins)
- Discussion in small groups (challenges and solutions) (3:10 – 3:45)
- Report back (3:45 – 4:00)
- Keep the discussions and solutions going (4:00 till Friday and beyond!)
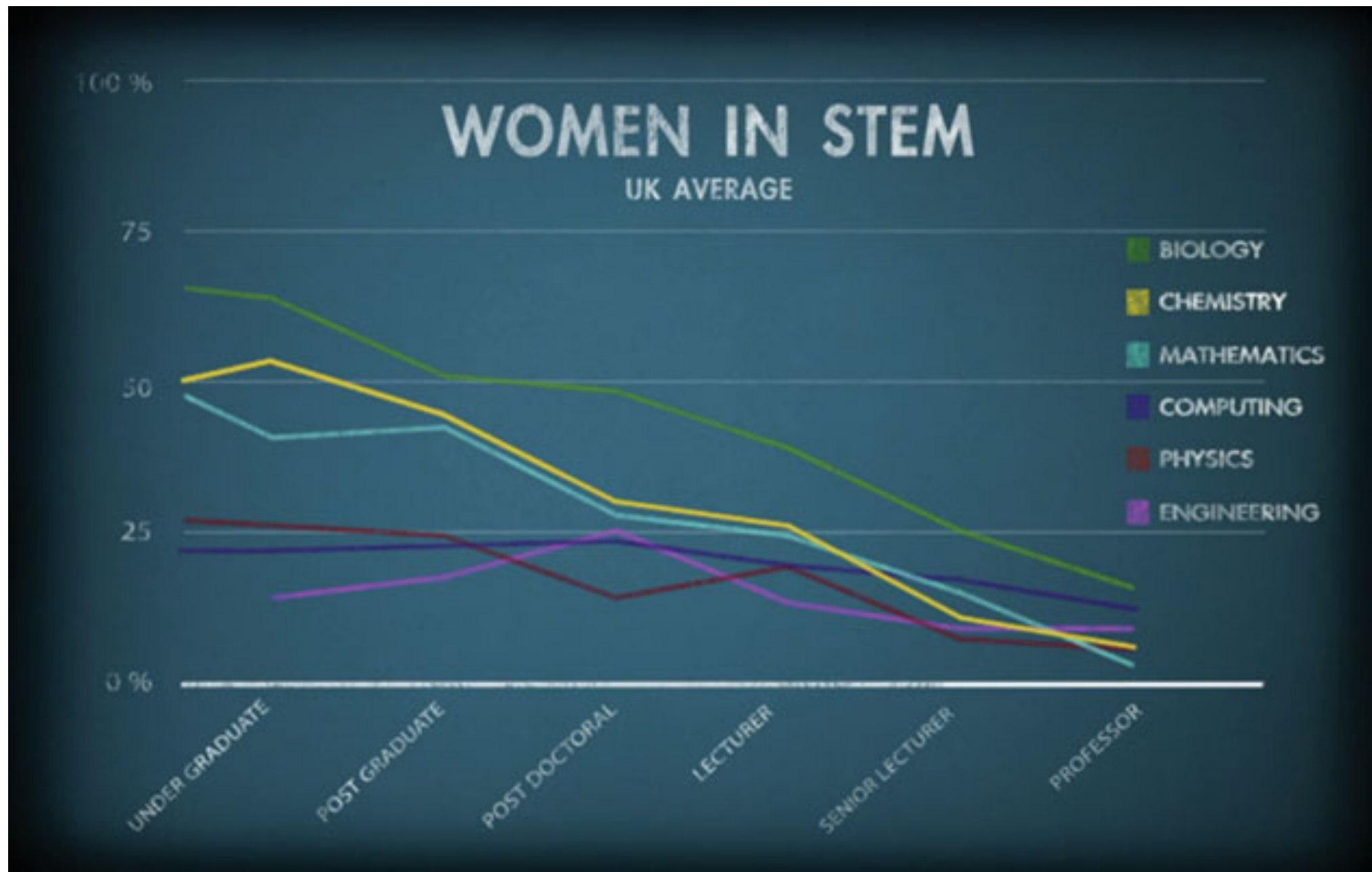
Presentation Overview

1) Women are leaving Academia
2) Why? – Implicit Biases
3) Why? – Unique challenges
4) Let's discuss!

1- Women Are Leaving Academia

More women earn doctorates

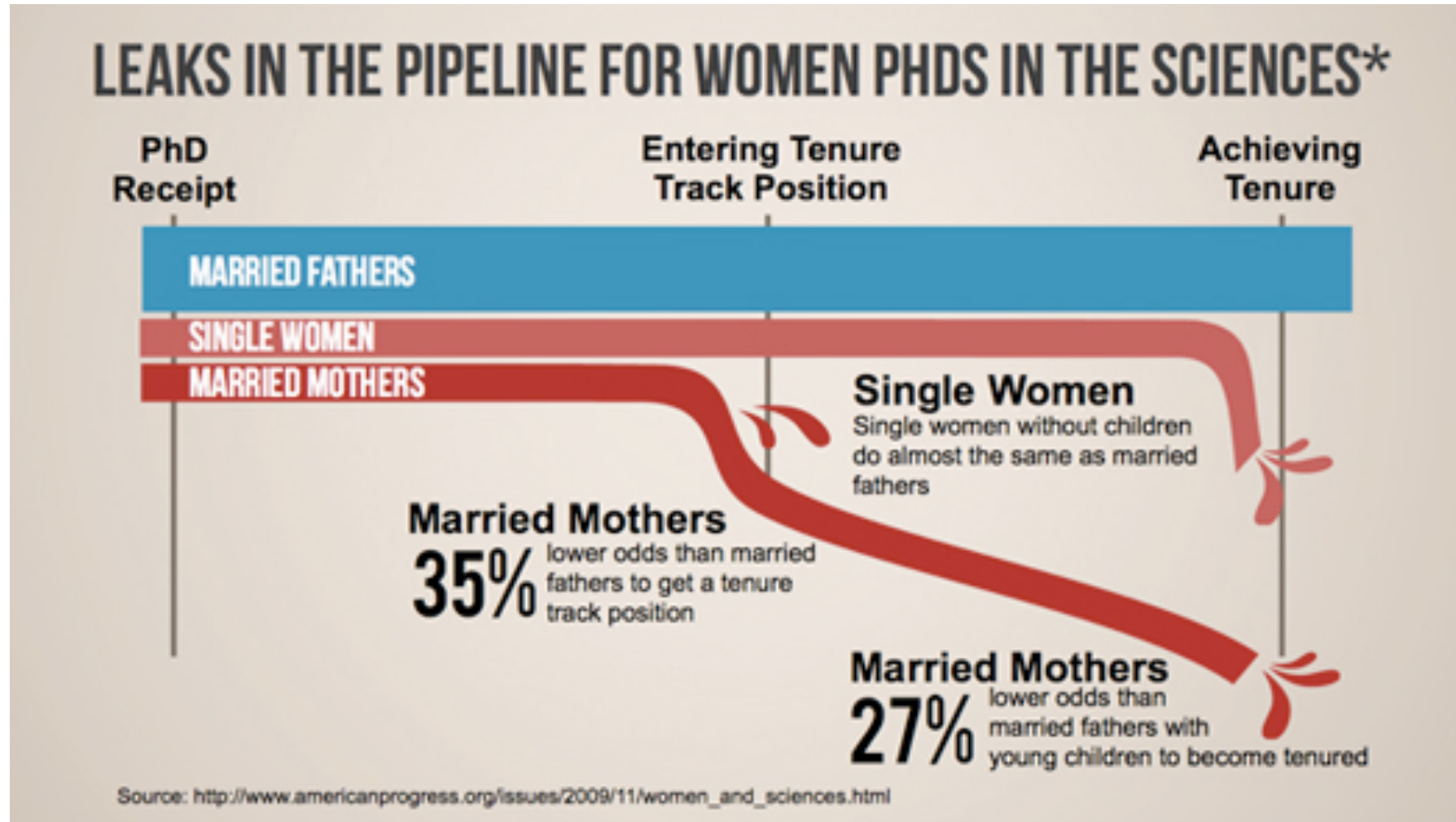Image from https://www.chemicalimbalance.ed.ac.uk/
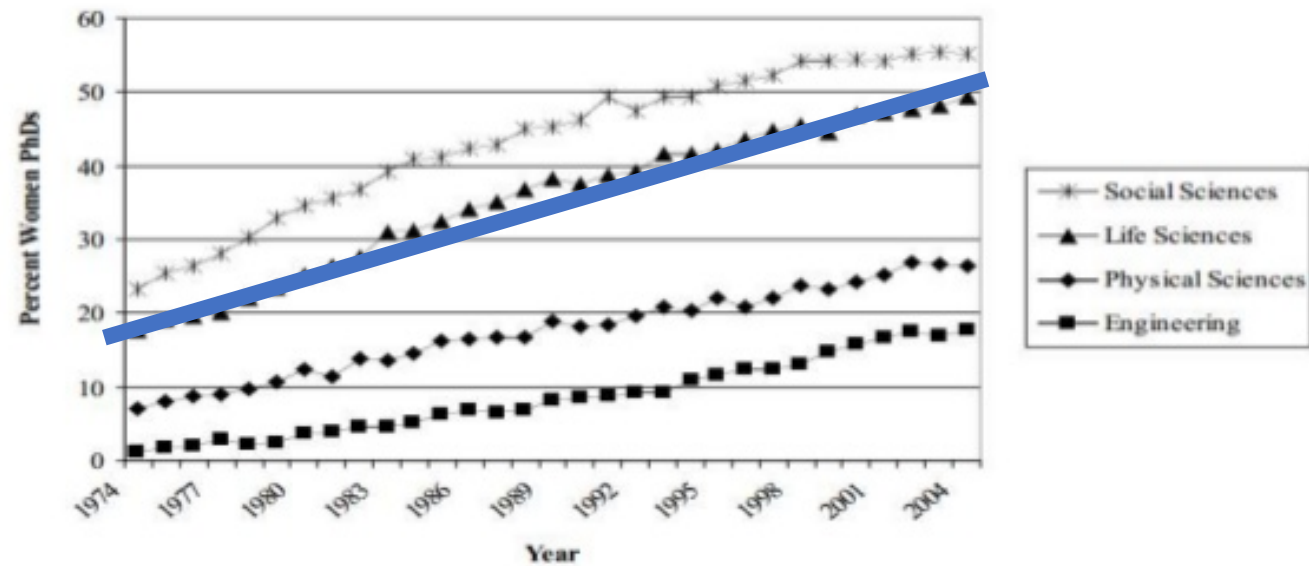
There are problems:

Women are not retained in academia in proportion to their abundance in the educational pipeline

Research suggests the reasons for this are largely related to social perceptions and their institutional manifestations

LEAKS IN THE PIPELINE FOR WOMEN PHDS IN THE SCIENCES*

PhD Receipt

Entering Tenure Track Position

Achieving Tenure

MARRIED FATHERS

SINGLE WOMEN

MARRIED MOTHERS

Single Women
Single women without children do almost the same as married fathers

Married Mothers
35% lower odds than married fathers to get a tenure track position

Married Mothers
27% lower odds than married fathers with young children to become tenured

Source: http://www.americanprogress.org/issues/2009/11/women_and_sciences.html

The Gender Penalty

- ## Decreased <u>Salary</u>
  - Shen et al. 2010. Why women earn less: Just two factors explain post-PhD pay gap. Nature

- ## Decreased <u>Funding</u> (4%)
  - Van der lee & Ellemers. 2015. Gender contributes to personal research funding success in The Netherlands. PNAS.

- ## Decreased <u>Awards and Prizes</u>
  - Lincoln *et al.* 2012. The Matilda Effect in science: Awards and prizes in the US, 1990s and 2000s. Social Studies of Science.

- ## Decreased in <u>Hiring and Mentoring</u>
  - Moss-Rascusin *et al.* 2012. Science faculty's subtle gender biases favor male students. PNAS

- ## Decreased <u>Publication</u> (8%)
  - Budden *et al.* 2008. Double-blind review favours increased representation of female authors. Trends in Ecology and Evolution

  => These differences are not associated with differences in productivity or performance
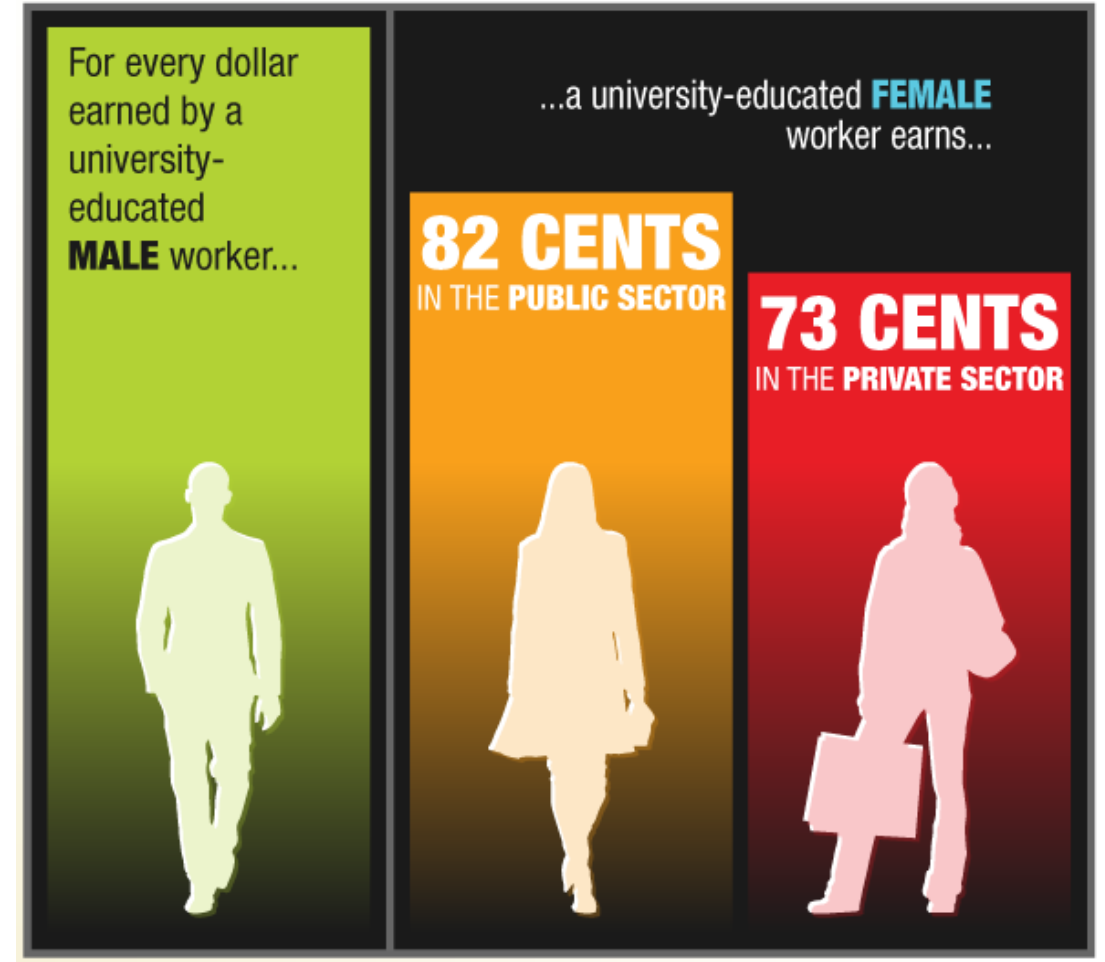
The Gender pay gap

Faculty at McMaster University, same rank: $3515
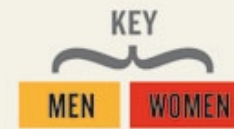
Faculty at UBC, same rank: $3000

Canadian universities in 2006, same rank: $4,000-5,000 gap.

All jobs in Canada: $8000 gap

For every dollar earned by a university-educated MALE worker...

...a university-educated FEMALE worker earns...

82 CENTS IN THE PUBLIC SECTOR
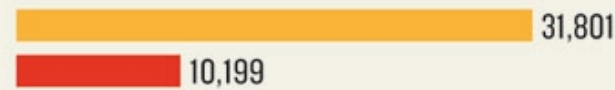
73 CENTS IN THE PRIVATE SECTOR

THE FUNDING GAP

Women are earning an increasing share of research grants from the US National Institutes of Health (NIH) but the average size of their awards has consistently lagged behind what men receive.

KEY
MEN WOMEN

2002
NUMBER OF NIH RESEARCH GRANTS
31,801
10,199

24%
Proportion going to women

2002
AVERAGE SIZE OF GRANT
$403,047
$330,169

2012
NUMBER OF NIH RESEARCH GRANTS
30,768
13,025

30%
Proportion going to women

2012
AVERAGE SIZE OF GRANT
$507,279
$421,385

THE SALARY GAP

Female scientists in the United States earn much less than men, on average, with the difference varying strongly by field.

BIOLOGY
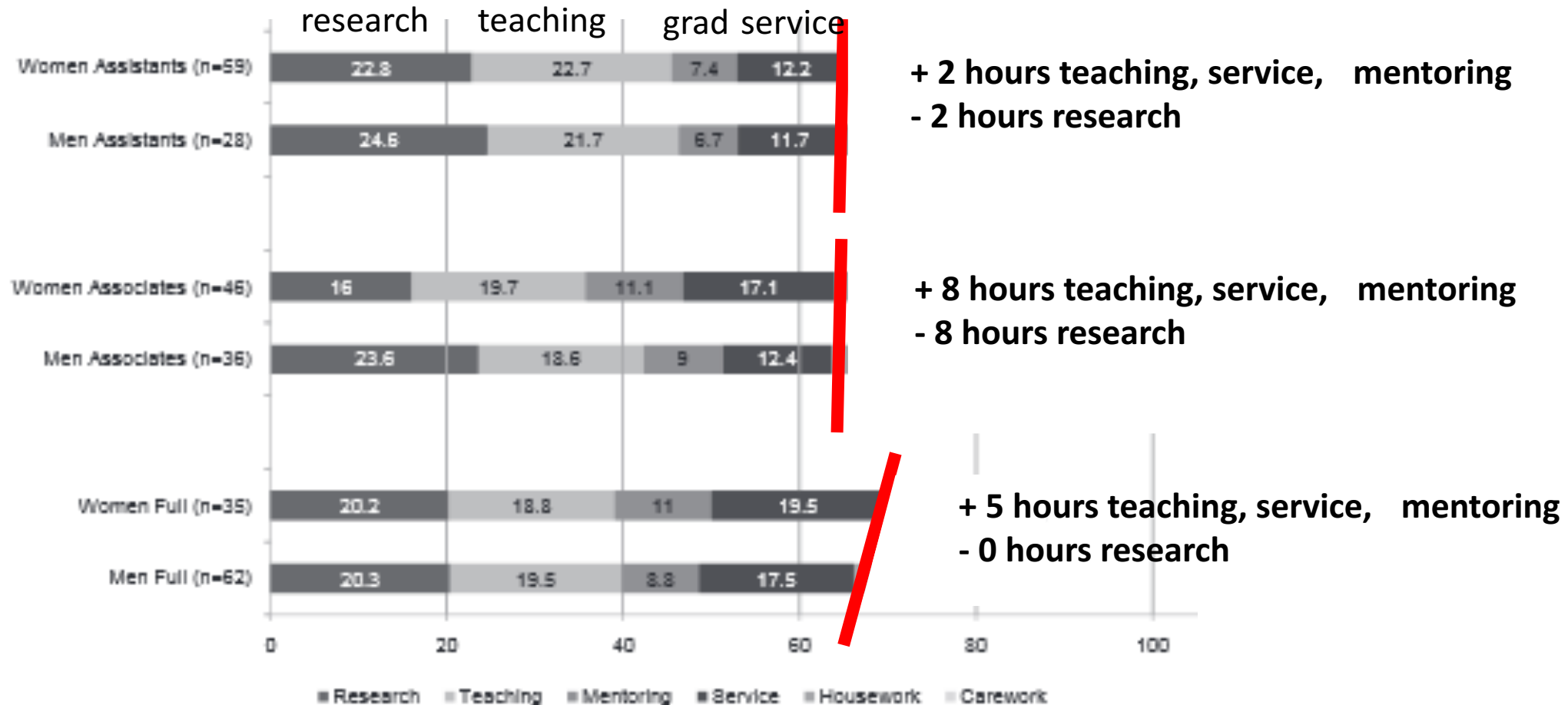$65,000
$50,000
2008 median salaries

CHEMISTRY
$79,000
$62,000
2008 median salaries

PHYSICS AND ASTRONOMY
$89,000
$54,000
2008 median salaries

18% AVERAGE PAY GAP ALL POSITIONS

Shen. Nature. 2013. vol.495

The time gap: Women faculty do more service and mentoring and men faculty do more research

research   teaching   grad   service

Women Assistants (n=59): 22.8 | 22.7 | 7.4 | 12.2
Men Assistants (n=28): 24.6 | 21.7 | 6.7 | 11.7

+ 2 hours teaching, service,   mentoring
- 2 hours research

Women Associates (n=46): 16 | 19.7 | 11.1 | 17.1
Men Associates (n=36): 23.6 | 18.6 | 9 | 12.4

+ 8 hours teaching, service,   mentoring
- 8 hours research

Women Full (n=35): 20.2 | 18.8 | 11 | 19.5
Men Full (n=62): 20.3 | 19.5 | 8.8 | 17.5

+ 5 hours teaching, service,   mentoring
- 0 hours research

0   20   40   60   80   100

■ Research   ▫ Teaching   ■ Mentoring   ■ Service   ▫ Housework   ▫ Carework

The time gap: Women faculty have less time for research also because they spend 4-14 hours more on "chores" at home

research | teaching | grad service | domestic

	Research	Teaching	Mentoring	Service	Housework	Carework
Women Assistants (n=59)	22.8	22.7	7.4	12.2	12.1	17.5
Men Assistants (n=28)	24.6	21.7	6.7	11.7	9.6	15.5
Women Associates (n=46)	16	19.7	11.1	17.1	14.3	23.4
Men Associates (n=36)	23.6	18.6	9	12.4	12.1	12.4
Women Full (n=35)	20.2	18.8	11	19.5	12.1	6.3
Men Full (n=62)	20.3	19.5	8.8	17.5	11.6	6.9

■ Research ■ Teaching ■ Mentoring ■ Service ■ Housework ■ Carework

Canadian women do 70% more domestic chores (>1 hour per day) than men, and have 30% less leisure time as a result.

Canada (2010)

	Care for household members	Routine housework	TV or radio at home	Sports	Sleeping
Women	44	133	99	21	507
Men	21	83	123	32	493
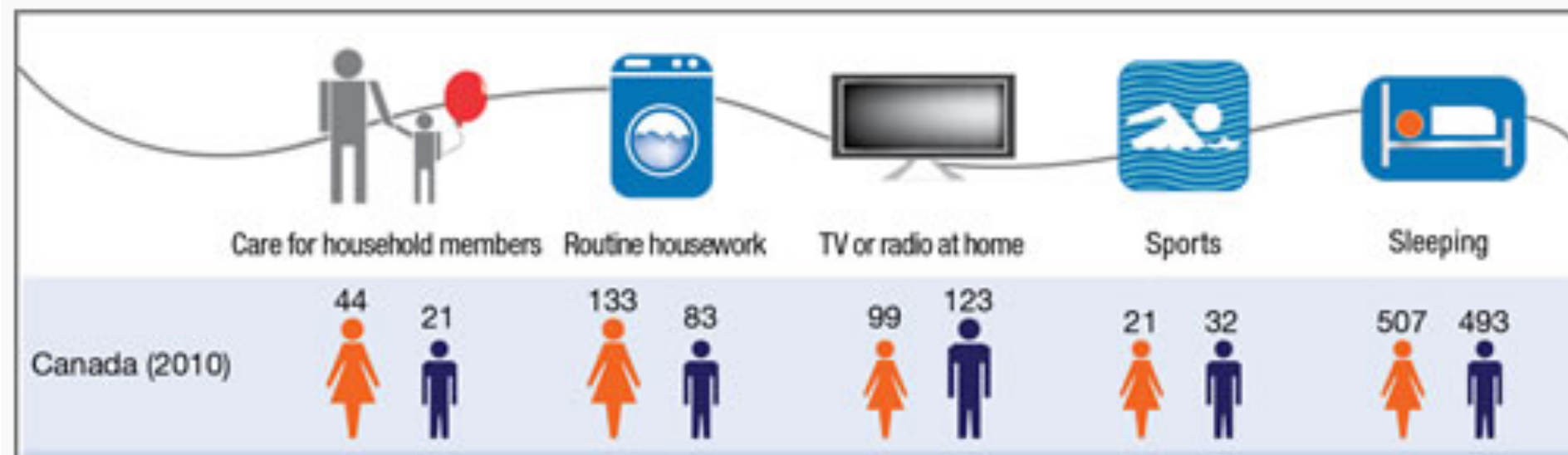
2- Why? Unconscious/Implicit Bias

- **Unconscious bias** refers to the assumptions and conclusions we jump to without thinking

- We <u>all</u> have them!

- These biases do not indicate hostility towards certain groups; they reflect how the individual has been socialized.

Traditional Gender Stereotypes.

Feminine.	Masculine.
Not aggressive.	Aggressive.
Dependent.	Independent.
Easily influenced.	Not easily influenced.
Submissive.	Dominant.
Passive.	Active.
Home-oriented.	Worldly.
Easily hurt emotionally.	Not easily hurt emotionally.
Indecisive.	Decisive.
Talkative.	Not at all talkative.
Gentle.	Tough.
Sensitive to other's feelings.	Less sensitive to other's feelings.
Very desirous of security.	Not very desirous of security.
Cries a lot.	Rarely cries.
Emotional.	Logical.
Verbal.	Analytical.
Kind.	Cruel.
Tactful.	Blunt.
Nurturing.	Not nurturing.

At work, women are expected to put the good of the group ahead of themselves

But that's not how one advances their scientific career!

These are also qualities we look for in scientists,
So the idea of a woman scientist clashes with our implicit biases.

Yet women exhibiting these behaviors can be perceived as "Bossy"
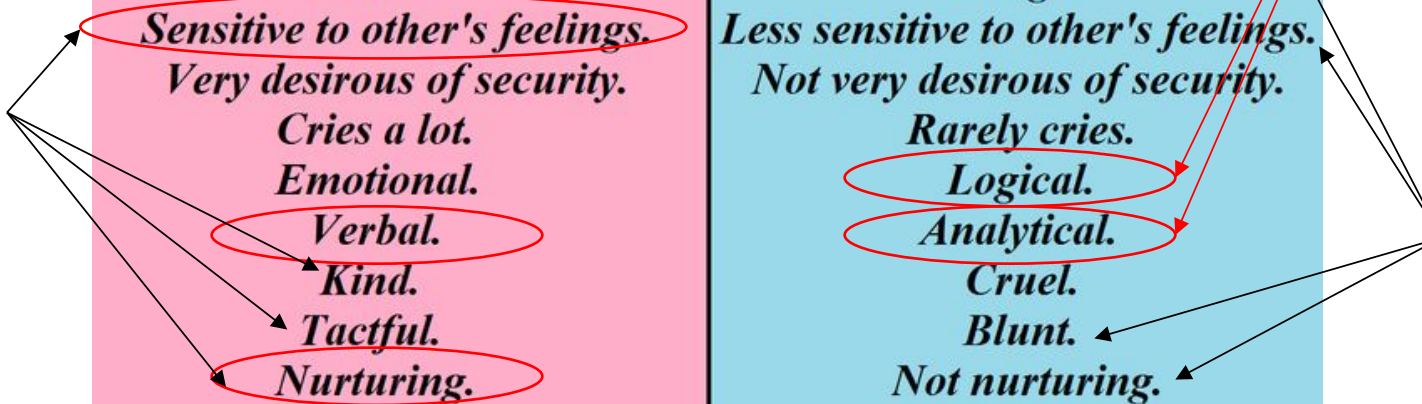
Leading to extra hurdles

- **Prove-it-Again.** Two-thirds of the women interviewed, and two-thirds of the women surveyed, reported having to prove themselves over and over again – their successes discounted, their expertise questioned.

- **The Tightrope.** Women need to behave in masculine ways in order to be seen as competent—but women are also expected to be feminine. So women find themselves walking a tightrope between being seen as too feminine to be competent.
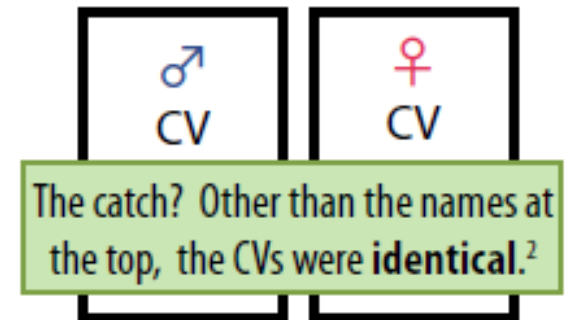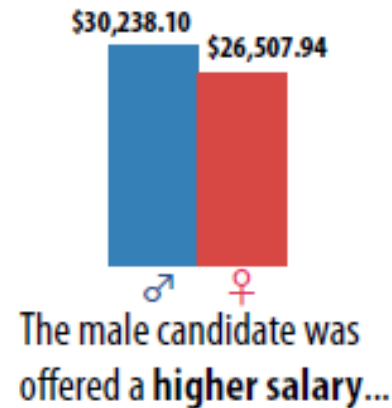
https://hbr.org/2015/03/the-5-biases-pushing-women-out-of-stem
http://www.uchastings.edu/news/articles/2015/01/double-jeopardy-report.pdf

Science faculty's subtle gender biases favor male students

Corinne A. Moss-Racusin[a,b], John F. Dovidio[b], Victoria L. Brescoll[c], Mark J. Graham[a,d], and Jo Handelsman[a,1]

[a]Department of Molecular, Cellular and Developmental Biology, [b]Department of Psychology, [c]School of Management, and [d]Department of Psychiatry, Yale University, New Haven, CT 06520

US science professors were asked to evaluate a CV for a **lab manager:** [2]

$30,238.10

$26,507.94

♂ ♀

The male candidate was offered a **higher salary…**

… more **mentorship**

… and was rated more "**competent**" and "**hireable**."

♂ CV   ♀ CV

The catch? Other than the names at the top, the CVs were **identical.**[2]

"female and male faculty were equally likely to exhibit bias against the female student"

3 – Group Discussion

Form sub-groups by career stage   now- 3h45pm

- Grads / PostDocs / Pre-Tenured Profs / Post-Tenured Profs

1. Identify the main challenges for minorities in science at your career stage

2. Identify potential **solutions**

Share with larger group   3h45-4h00pm
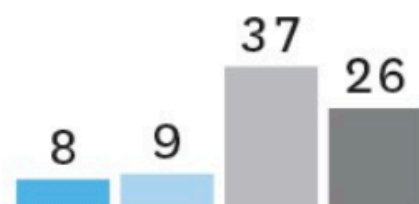
The little things that add up

- Women are less likely to promote themselves
- Women feel like they have less time to mentor
- Women suffer more from imposter syndrome
- Saying things in meetings and other people getting credit for their ideas
- Not being viewed as an expert in outreach contexts
- Not thinking of women when nominating women as reviewers, award recipients etc.
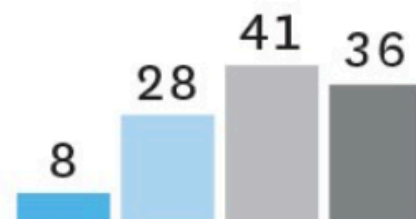
PERCENT OF U.S. WOMEN IN STEM WHO REPORT...
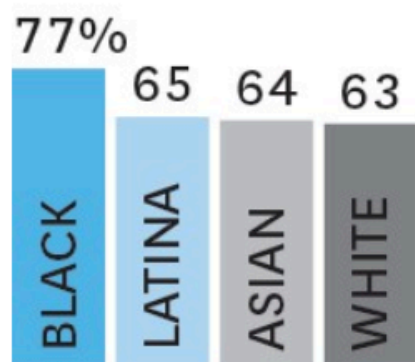
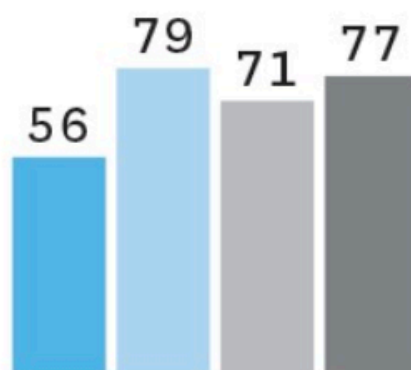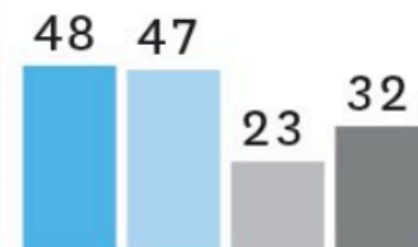| having to provide more evidence of competence than others to prove themselves. | that colleagues have suggested they should work fewer hours after having children. | that at work, they find themselves pressured to play a stereotypically feminine role.* | that women in their work environments support one another. | they've been mistaken for either administrative or custodial staff. |

having to provide more evidence of competence than others to prove themselves.

- BLACK: 77%
- LATINA: 65
- ASIAN: 64
- WHITE: 63

that colleagues have suggested they should work fewer hours after having children.

- 8
- 9
- 37
- 26

that at work, they find themselves pressured to play a stereotypically feminine role.*

- 8
- 28
- 41
- 36

that women in their work environments support one another.

- 56
- 79
- 71
- 77

they've been mistaken for either administrative or custodial staff.

- 48
- 47
- 23
- 32

*SUCH AS "OFFICE MOTHER" OR "DUTIFUL DAUGHTER."
SOURCE JOAN C. WILLIAMS, KATHERINE W. PHILLIPS, AND ERIKA V. HALL

HBR.ORG

The 5 Biases Pushing Women Out of STEM

by Joan C. Williams

- **Pattern 1: Prove-it-Again.** Two-thirds of the women interviewed, and two-thirds of the women surveyed, reported having to prove themselves over and over again – their successes discounted, their expertise questioned. "People just assume you're not going to be able to cut it," a statistician told us, in a typical comment.

- **Pattern 2: The Tightrope.** Women need to behave in masculine ways in order to be seen as competent—but women are expected to be feminine. So women find themselves walking a tightrope between being seen as too feminine to be competent, and too masculine to be likable.

- **Pattern 3: The Maternal Wall.** When professional women have children, they often find themselves running into a wall: their commitment and competence are questioned, and opportunities start drying up.

- **Pattern 4: Tug-of-War.** Studies show that women who have encountered discrimination early in their careers often distance themselves from other women; gender bias against women fuels conflict among women

- **Pattern 5: Isolation.** "A lot of times," said a microbiologist, "There are things that people exclude me from because they say, 'Oh, she's going to be the only black person there… just don't invite her, she won't feel comfortable.'"

Hacking Tech's Diversity Problem

by **Joan C. Williams**

SUMMARY   SAVE   SHARE   **7** COMMENT   H**H** TEXT SIZE   PRINT   **$8.95** BUY COPIES

When Google, Yahoo, LinkedIn, and Facebook disclosed their woefully low levels of female employment in the summer of 2014, admitting that they had a lot of work to do to improve them, they signaled a shift for the technology industry. It's remarkable that the sector is finally stepping up to the plate on diversity—and refreshing that its focus is on metrics rather than rhetoric.

Solutions

- When nominating people for seminar speakers, awards, working groups, etc: think about it, and consult lists (https://diversifyeeb.wordpress.com/about/)

- Perceived competitiveness: promote your colleagues and recognize their success

- Do implicit bias training

- Recommendation letters

- Mentoring programs

Grad student strategies

-Have open discussions involving all members of their dept about bias, microagressions, inappropriate behavior and harassment

-Have elected grad student liasons and identified allies in the faculty to facilitate these conversations

-Greater transparency about how bias would be dealt with, for example in a handbook, so that it was clear how reporting and enforcement would work

Postdoc strategies

-Establish contact people for postdocs among the faculty

-Build a postdoc network to allow easy exchange among postdocs and actively recruit postdocs into this network

-Provide a support network and raise awareness for issues related to pregnancy leave and childcare

-Establish formalized networking opportunities at conferences, e.g. apps at meetings, poster previews as part of talks

Assistant Professors

-Enforce mandatory unconscious bias training for all committees, especially for all members of search committees

-Try to mutually reinforce each other during committee discussions; work as allies to have a stronger voice. If you see something, say something.

- If presence on committees is required, provide relief from other departmental responsibilities; permit selection of which committees to serve on and mentorship on which committees to prioritize

Associate professors

-Provide mentorship for promotion to full

-Hire more women and underrepresented scientists: have interview pool reflect diversity of applicant or current PhD pool in the field

-Letter writing: are you using gender-biased vocabulary?

-Be aware of unrealistic expectations of who should be on committees. If women are not equally rep'd among faculty, expecting 50% rep'n on committees creates an undue service burden

-Reminder at the beginning of committee meetings that unconscious bias exists to limit effects

Full professors

-Communicate positive messages about our profession

-Seminars: Increase representation of women and other underrepresented groups as speakers to illustrate positive role models

-Create opportunities for yourself; e.g. invite yourself to give seminars and nominate yourself or ask someone to nominate you for awards