



**Office of Clinical Research  
Lunch & Learn**

**Gender Equity in STEM:  
Can More Be Done?**  
Thursday, March 21<sup>st</sup>, 2024

## **Reporting in MIDAS for Clinical Research:**

Please keep in mind, it is the Principal Investigator and study team's responsibility to immediately report any "Unexpected" and "Related" Serious Adverse Events to UC Health via MIDAS. This is separate and in addition to IRB and other regulatory reporting.

Please refer to the following SOP:

**UCH-OCR-OPS-SOP-014-06: Prompt MIDAS Reporting of Serious Adverse Events that are both Unexpected and Related to the Research**

**All OCR SOPs are accessible at the following [link](#).  
And from the UC Health intranet home page utilizing the Policy Portal Search function  
or reach out to the Office of Clinical Research with any questions or concerns.**

# **CRP Team Science Needs Assessment Survey**

You are invited to participate in a needs assessment survey (approximately 10-15 minutes) to evaluate team science activities, learning needs and training preferences for CRP team science.

This project is approved by the IRB at the University of Cincinnati.  
Results will contribute to developing a national CRP Team Science Training Toolkit.

If you are a CRP working in clinical research, please access the survey at the URL or QR code below:

<https://redcap.research.cchmc.org/surveys/?s=88KMCMF4JCD9HDDC>





**Office of Clinical Research**  
**First Friday**

**Friday, April 5<sup>th</sup>, 2024**

# **Lactation: Not Just a Women's Issue**

**Alexa Sabedra**

**Assistant Professor of Clinical  
Emergency Medicine | College of Medicine**



# Today's Presentation:

## Gender Equity in STEM: Can More Be Done?

The academic community continues to build upon the progress of recognizing the need for gender equity in STEM. However, the trajectory reveals that there is still an ongoing need to pursue these efforts. Exploration of the untapped potential towards equity is paramount, all while recognizing a few of the women pioneers who contributed to the advancement of science and medicine

### **Bi Awosika, MD, FACP, SFHM (she/her/hers)**

Assistant Dean of Diversity, Equity and Inclusion  
University of Cincinnati College of Medicine  
Chair, Resident Clinical Competency Committee  
Associate Program Director, Internal Medicine Residency  
Hospitalist, Associate Professor of Medicine  
University of Cincinnati Medical Center

# Gender Equity in STEM: Can More Be Done?



**Bi Awosika, MD, FACP SFHM**

Assistant Dean of Diversity, Equity, and Inclusion, UCCOM

Associate Professor in Clinical Medicine

Associate Program Director - IM Residency

Department of Internal Medicine

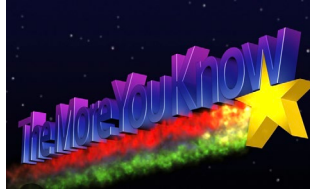
# Financial Disclosures

No financial disclosures to report

# Learning Objectives

- Introduce a brief historical perspective of STEM
- Discuss challenges from a DEI framework
- Explore strategies for achieving gender equity
- Celebrate women pioneers and HerStory in STEM



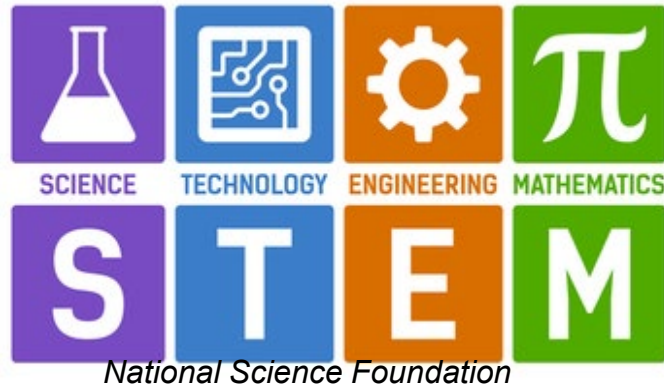


# STEM: Historical Context



- **1860s**: Morrill Act and creation of universities (agriculture)
- **1930-40s**: WWII with rubber, weaponry
- **1950s**: Space Race and creation of NASA
- **1970-80s**: First products, curriculum
- **1990s**: Introduction of First Acronym

# The Promise



- Foundation of **STEM**:
  - History from National Science Foundation
  - Greater funding and education towards innovation
- **STEM<sup>2</sup>**: Inclusion of Medicine

# Gender Equity defined:



© 2014, Saskatoon Health Region

## **EQUALITY = SAMENESS**

Giving everyone the same support only works if everyone starts from the same place.

## **EQUITY = FAIRNESS**

Giving everyone the support they **NEED** provides equity before enjoying equality.

# The Future

- Why **STEM**?
  - Diversity of perspectives to mitigate biases
  - Wage gap: Disparity with highest earning potential
  - Impact on economy and demand of labor

# The **DEI** Framework

- Points of Consideration:
  - Presence of underrepresentation
  - Delineation of equitable rewards
  - Sense of belonging

Schmader T. Gender Inclusion and Fit in STEM. *Annu Rev Psychol.* 2023 Jan 18;74:219-243. doi: 10.1146/annurev-psych-032720-043052. Epub 2022 Aug 12. PMID: 35961037.

# Spotlight: Woman Pioneer



Marie Curie  
(1867-1934)  
Chemist,  
Physicist

# Diversity



- Statistics in the Workforce
  - STEM Occupations: 25% Women (8million)
    - URiM 22% Bachelors, 12% PhD (30% US pop)
    - Tenure Track: 25% Women, 6% URiM
  - 18% Hospital Chief Executives
  - 16% Department Chairs, Deans
- Consideration of impact of pathway programs

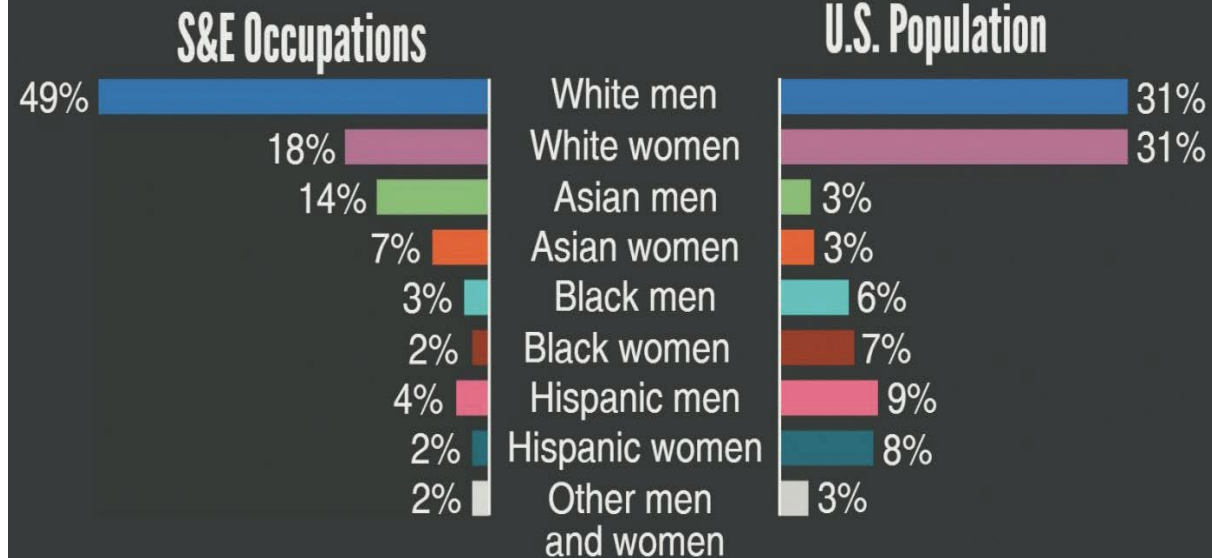
Proceedings of the National Academies of Science, 2020

National Academies of Sciences, Engineering, and Medicine; Policy and Global Affairs; Committee on Women in Science, Engineering, and Medicine; Committee on Increasing the Number of Women in Science, Technology, Engineering, Mathematics, and Medicine (STEMM), Helman, A., Bear, A., & Colwell, R. (Eds.). (2020). Promising Practices for Addressing the Underrepresentation of Women in Science, Engineering, and Medicine: Opening Doors. National Academies Press (US).

# Diversity

## Workers in science and engineering occupations

In 2015, women and some minority groups were represented less in science and engineering (S&E) occupations than they were in the U.S. general population.

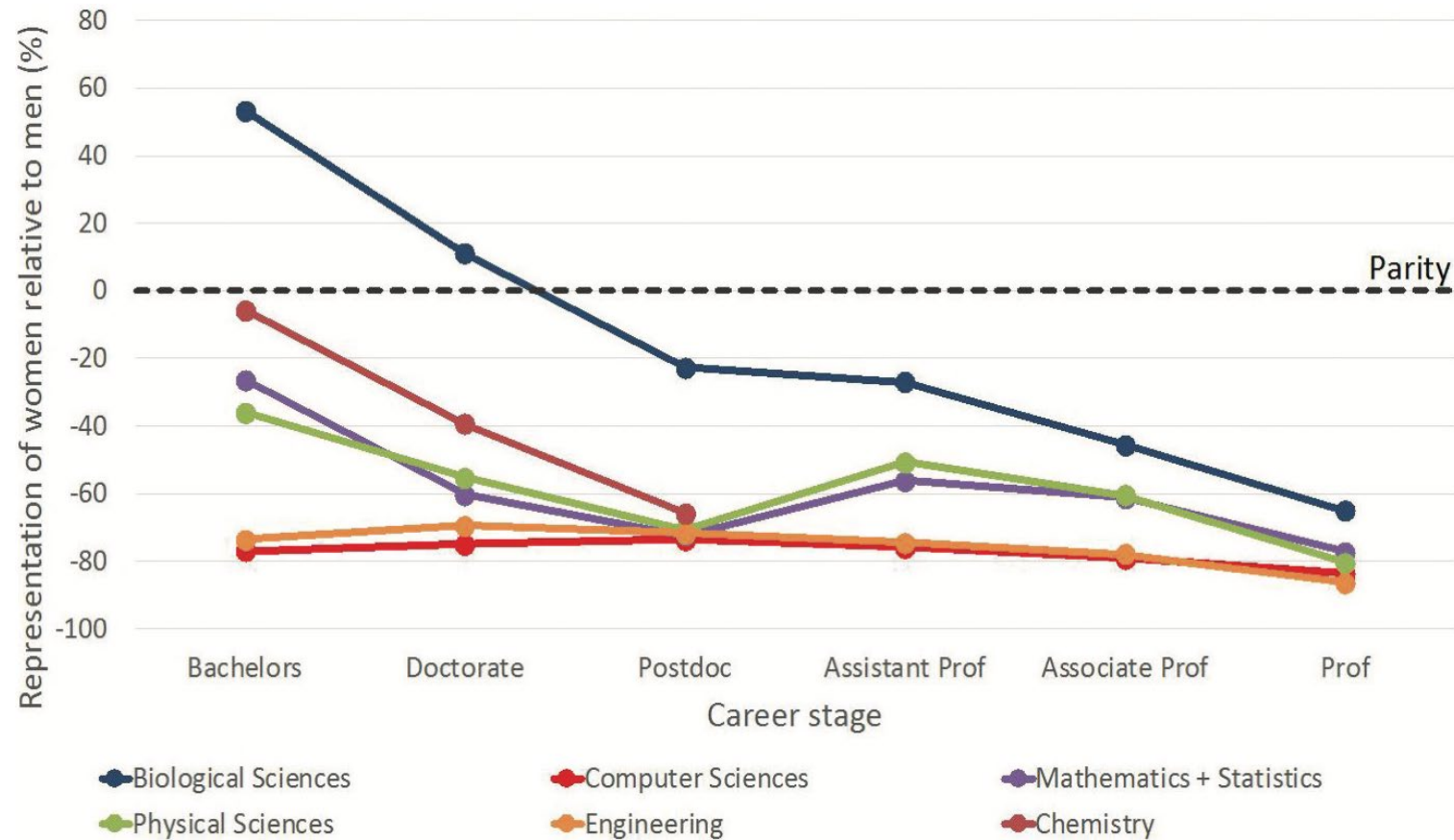


Source: National Center for Science and Engineering Statistics, National Science Foundation  
Women, Minorities, and Persons with Disabilities in Science and Engineering: 2017  
<https://nsf.gov/statistics/wmpd/>

National Academies of Sciences, Engineering, and Medicine; Policy and Global Affairs; Committee on Women in Science, Engineering, and Medicine; Committee on Increasing the Number of Women in Science, Technology, Engineering, Mathematics, and Medicine (STEMM), Helman, A., Bear, A., & Colwell, R. (Eds.). (2020). Promising Practices for Addressing the Underrepresentation of Women in Science, Engineering, and Medicine: Opening Doors. National Academies Press (US).



# Diversity



National Academies of Sciences, Engineering, and Medicine; Policy and Global Affairs; Committee on Women in Science, Engineering, and Medicine; Committee on Increasing the Number of Women in Science, Technology, Engineering, Mathematics, and Medicine (STEMM), Helman, A., Bear, A., & Colwell, R. (Eds.). (2020). Promising Practices for Addressing the Underrepresentation of Women in Science, Engineering, and Medicine: Opening Doors. National Academies Press (US).

# Spotlight: Woman Pioneer



Dr. Gladys  
West  
(1930- )

Foundation  
of GPS  
Technology

# Equity for women and underrepresented minorities in STEM: Graduate experiences and career plans in chemistry

Jean Stockard<sup>a</sup>, Celeste M. Rohlfsing<sup>b</sup>, and Geraldine L. Richmond<sup>c,1</sup>

<sup>a</sup>Department of Planning, Public Policy and Management, University of Oregon, Eugene, OR 97403; <sup>b</sup>Committee on the Advancement of Women Chemists (COACH), University of Oregon, Eugene, OR 97403; and <sup>c</sup>Department of Chemistry, University of Oregon, Eugene, OR 97403

Contributed by Geraldine L. Richmond, November 20, 2020 (sent for review October 7, 2020; reviewed by Arthur Bienenstock and Victor McCrary, Jr.)

- PhD Highlights: Top 100 departments in STEM
  - Women, URiM: less positive interactions with advisors
    - Microaggressions
    - Reporting of less financial support
  - Women less likely to complete PhD
  - Less professorships in research vs. teaching

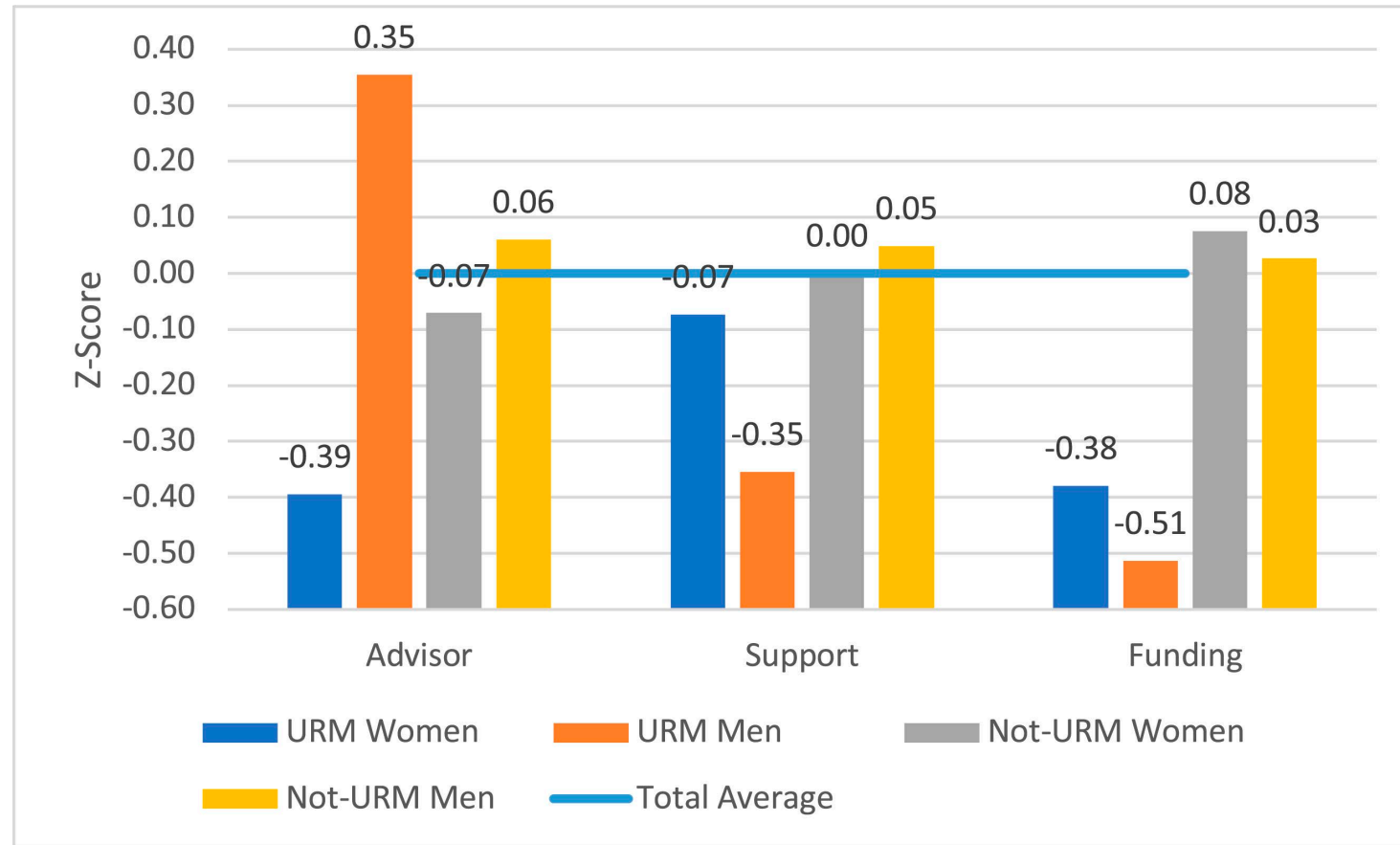
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Proceedings of the National Academies of Science, 2020



# Equity



- **Barriers in current spaces:**
  - **Position:** Recruitment bias, attention to family needs
  - **Expectations:** Service inequity, teaching loads
  - **Internal and External Opportunities:**
    - Disparity with resource allocation, mentorship access, evaluation
    - Speaking invitations, editorial boards, funding

National Academies of Sciences, Engineering, and Medicine; Policy and Global Affairs; Committee on Women in Science, Engineering, and Medicine; Committee on Increasing the Number of Women in Science, Technology, Engineering, Mathematics, and Medicine (STEMM), Helman, A., Bear, A., & Colwell, R. (Eds.). (2020). Promising Practices for Addressing the Underrepresentation of Women in Science, Engineering, and Medicine: Opening Doors. National Academies Press (US).

# Equity

WOMEN AND MEN IN STEM OFTEN AT ODDS OVER WORKPLACE EQUITY

## There are racial earnings gaps in the STEM workforce for both men and women

### There are racial earnings gaps in the STEM workforce for both men and women

*Median annual earnings of full-time, year-round workers ages 25 and older employed in a science, technology, engineering or math occupation, in 2016 dollars*

	<u>All</u>	<u>% of White</u>	<u>Men</u>	<u>% of White</u>	<u>Women</u>	<u>% of White</u>
White	\$71,897		\$85,000		\$60,828	
Asian	\$90,000	125%	\$96,311	113%	\$81,011	133%
Black	\$58,000	81	\$66,834	79	\$52,718	87
Hispanic	\$60,758	85	\$70,000	82	\$52,000	85

Note: Based on workers with positive earnings.

Source: Pew Research Center analysis of 2014-2016 American Community Survey (IPUMS).

"Women and Men in STEM Often at Odds Over Workplace Equity"

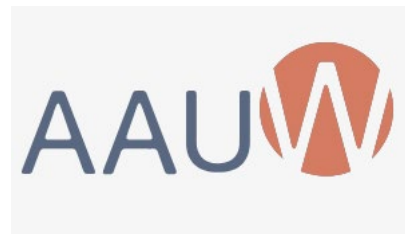
[https://www.pewresearch.org/social-trends/2018/01/09/women-and-men-in-stem-often-at-odds-over-workplace-equity/ps\\_2018-01-09\\_stem\\_a-09/](https://www.pewresearch.org/social-trends/2018/01/09/women-and-men-in-stem-often-at-odds-over-workplace-equity/ps_2018-01-09_stem_a-09/)

# Equity



- The Wage Gap:

- Women receive on average **\$15,000** less
- Latina and African-American women receive **\$33,000** less



American Association of University Women  
(AAUW.org)

# Spotlight: Woman Pioneer



Dr. Ellen  
Ochoa  
(1958- )  
NASA,  
Space  
travel



# Inclusion

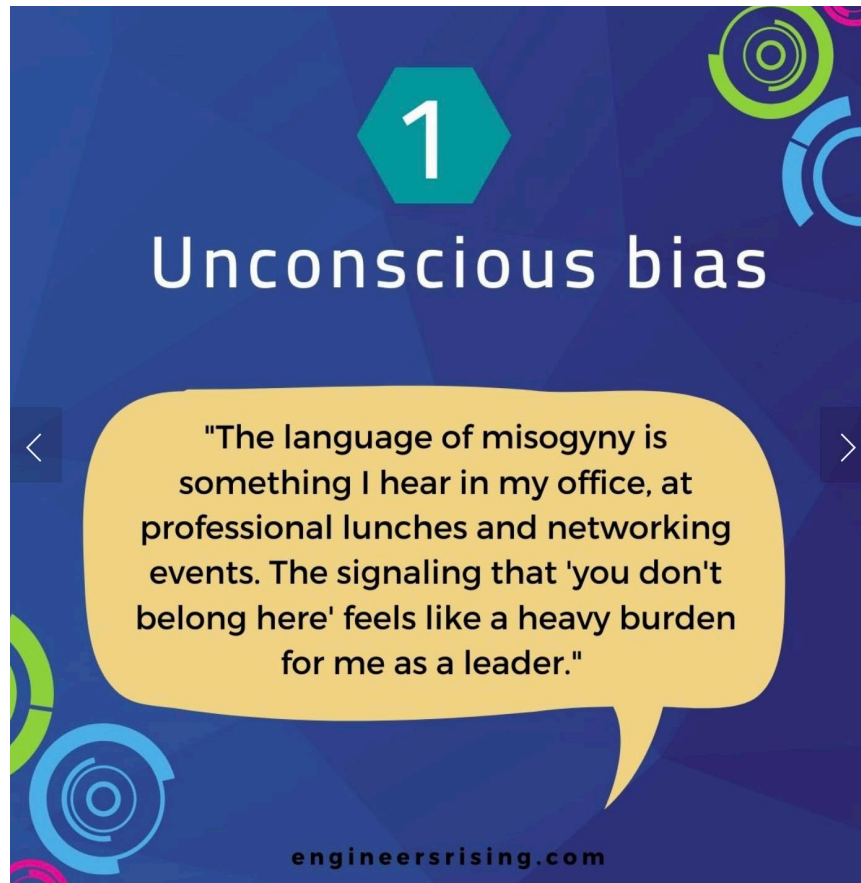


# Inclusion



<https://www.engineersrising.com/blog/top10challenges>

# Inclusion



1

## Unconscious bias

"The language of misogyny is something I hear in my office, at professional lunches and networking events. The signaling that 'you don't belong here' feels like a heavy burden for me as a leader."

engineersrising.com

This slide features a dark blue background with colorful circular patterns. A teal hexagon with the number '1' is at the top. A yellow speech bubble contains the quote. Navigation arrows are on the left and right sides.



6

"As a black female, people don't expect you to be able to understand what you're doing. One of my biggest pet peeves is people questioning my abilities."

## Institutional racism and sexism

engineersrising.com

This slide features a dark blue background with colorful circular patterns. A red hexagon with the number '6' is on the left. A blue speech bubble contains the quote. Navigation arrows are on the left and right sides.

# Inclusion

**3** Hustle culture

"Studies show productivity does not equal hours worked. Yet, I've seen hours worked used as a badge of honor in many places I've worked."

"I don't think it's an organizational structure or policy that solves this. It's a mindset approach."

engineersrising.com

Promotion Paths Are A Mystery

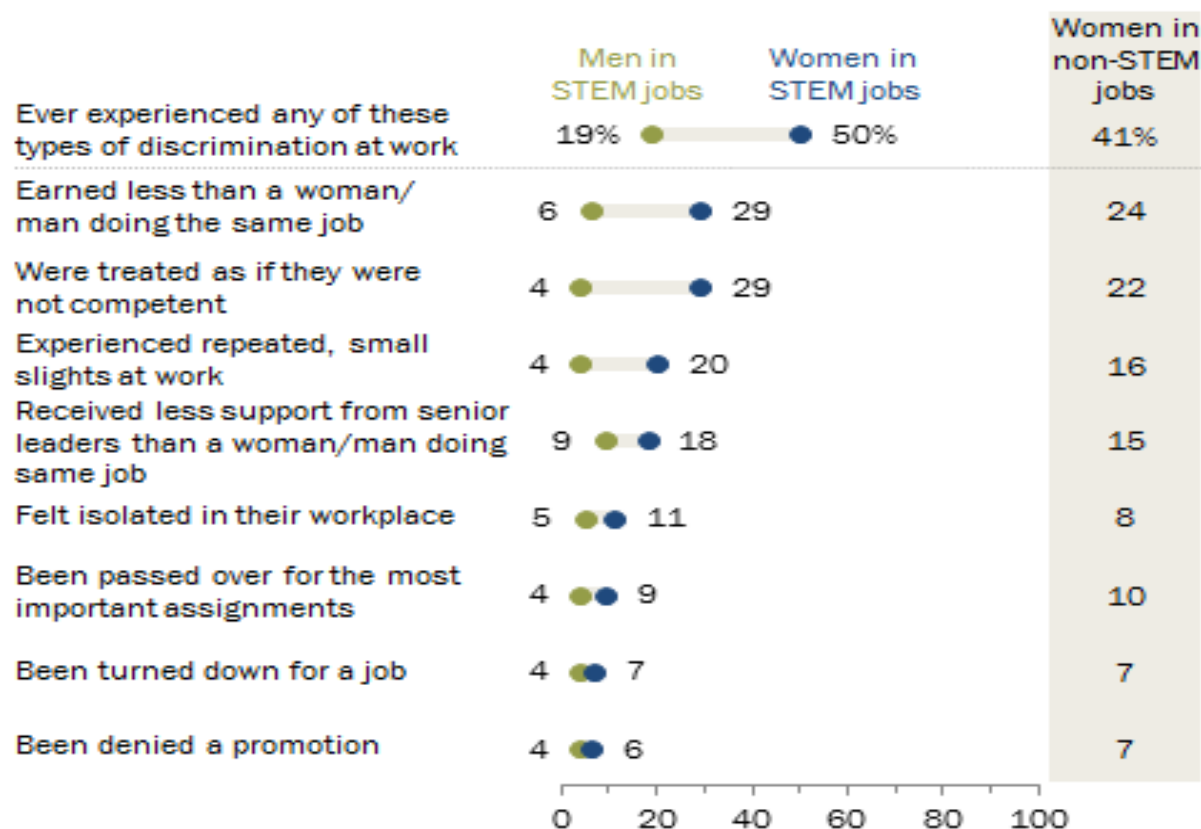
**4**

"One of my biggest frustrations is that the promotion rules would constantly change and never in my favor. I'd do what they said I needed to do to be promoted, and then different criteria would be used as an excuse for not promoting me."

engineersrising.com

## Half of women in STEM jobs say they have been discriminated against at work

*% of those in science, technology, engineering and math jobs who say they have ever experienced the following at work due to their gender*



Note: Respondents who gave other responses or who did not give an answer are not shown.

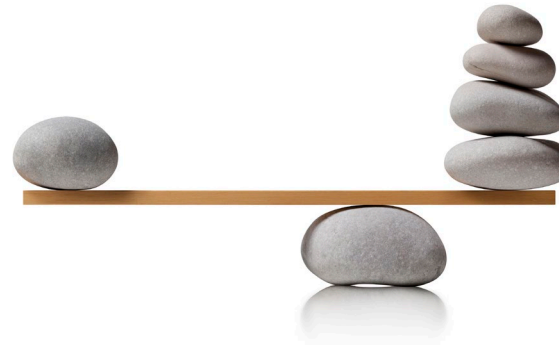
Source: Survey of U.S. adults conducted July 11-Aug. 10, 2017.

"Women and Men in STEM Often at Odds Over Workplace Equity"

PEW RESEARCH CENTER



What can we do to change the narrative?



# Spotlight: Woman Pioneer



Katherine  
Johnson: Scientist  
and  
Mathematician,  
NASA

# Strategies

- **Leadership:** Cultural change of organization
- **Efficacy:** Mentorship programs for marginalized groups
- **Education:** Effective inclusive training
- **Pathway:** Acknowledgement of ability
  - Presence of STEM Education Centers

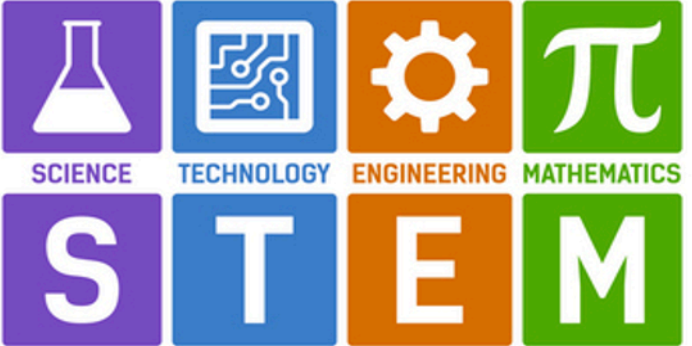
Carlisle, D.L., Weaver, G.C. STEM education centers: catalyzing the improvement of undergraduate STEM education. *IJ STEM Ed* 5, 47 (2018). <https://doi.org/10.1186/s40594-018-0143-2>

Schmader T. Gender Inclusion and Fit in STEM. *Annu Rev Psychol.* 2023 Jan 18;74:219-243. doi: 10.1146/annurev-psych-032720-043052. Epub 2022 Aug 12. PMID: 35961037.



# Strategies

**Focus:**

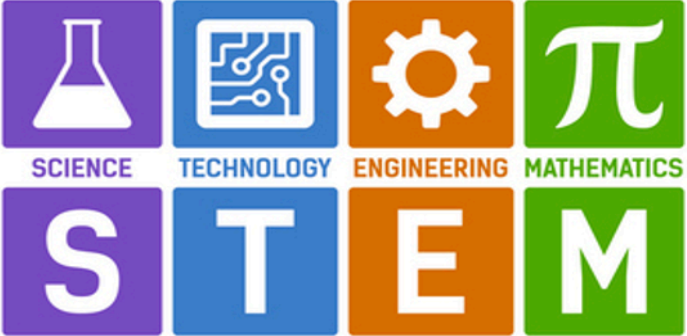


\*NIH/NSF Annual evaluation to Congress on experiences

\*Budgetary measures: greater equity for women

National Academies of Sciences, Engineering, and Medicine; Policy and Global Affairs; Committee on Women in Science, Engineering, and Medicine; Committee on Increasing the Number of Women in Science, Technology, Engineering, Mathematics, and Medicine (STEMM), Helman, A., Bear, A., & Colwell, R. (Eds.). (2020). Promising Practices for Addressing the Underrepresentation of Women in Science, Engineering, and Medicine: Opening Doors. National Academies Press (US).

# Strategies



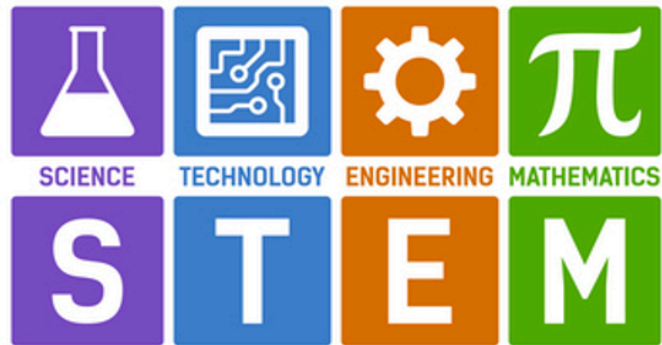
**Focus:**

- \*College/university leadership engaging in climate research
- \*Policies towards protection, building of inclusive environments

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# Strategies

## Focus:



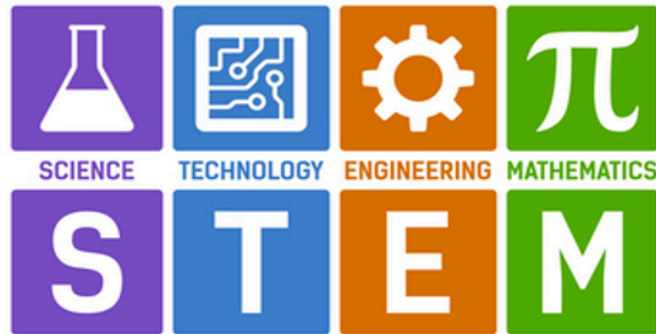
\*Pathway K-12 programming,  
active learning exercises

\*Enhance recruitment,  
retention, and advancement of  
women in STEM<sup>2</sup>

National Academies of Sciences, Engineering, and Medicine; Policy and Global Affairs; Committee on Women in Science, Engineering, and Medicine; Committee on Increasing the Number of Women in Science, Technology, Engineering, Mathematics, and Medicine (STEMM), Helman, A., Bear, A., & Colwell, R. (Eds.). (2020). Promising Practices for Addressing the Underrepresentation of Women in Science, Engineering, and Medicine: Opening Doors. National Academies Press (US).

# Strategies

## Focus:



\*Celebrating and rewarding institutions promoting DEI work, policies

\*Bolster research in gender equity

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# Spotlight: Women Pioneers

- Elizabeth Blackwell, MD (1821-1910)



First Woman Graduate of Medical School in US

- Rebecca Lee Crumpler, MD (1831-1895)



First African-American Woman Graduate of Medical School

- Lucy Oxley, MD (1912-1991)



First African-American Woman Graduate of UCCOM

# Summary

- Gender equity is impacted by underrepresentation, fit, reward systems
- Advancement requires mitigation of various factors that slow progress
- Intentional strategies on the individual and institutional accelerates change

# Thank You and Questions



**New Pet Mom!**  
**(as of 10/28/23)** **spca**  
cincinnati

