



Addressing the Leaky STEM Pipeline

(STEM = Science, Technology, Engineering, Mathematics)

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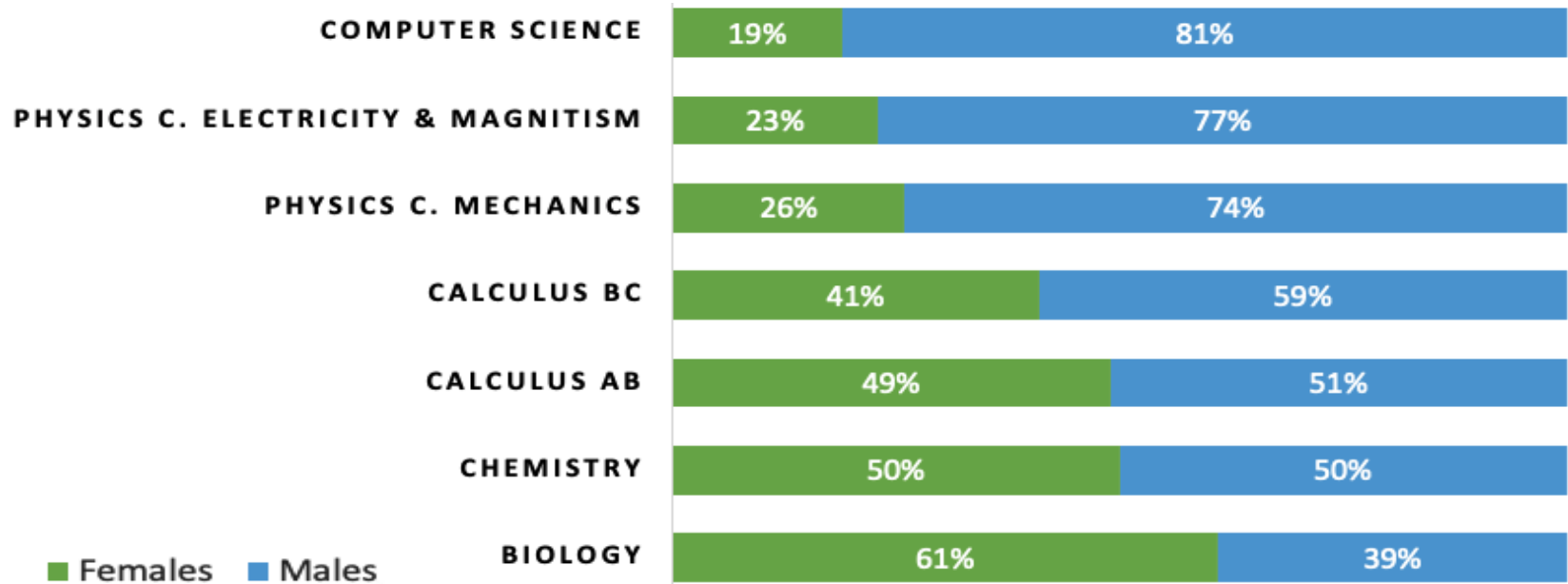




Stem Gender Gap Starts Early

AP TESTS TAKEN IN 2016 BY SUBJECT & GENDER

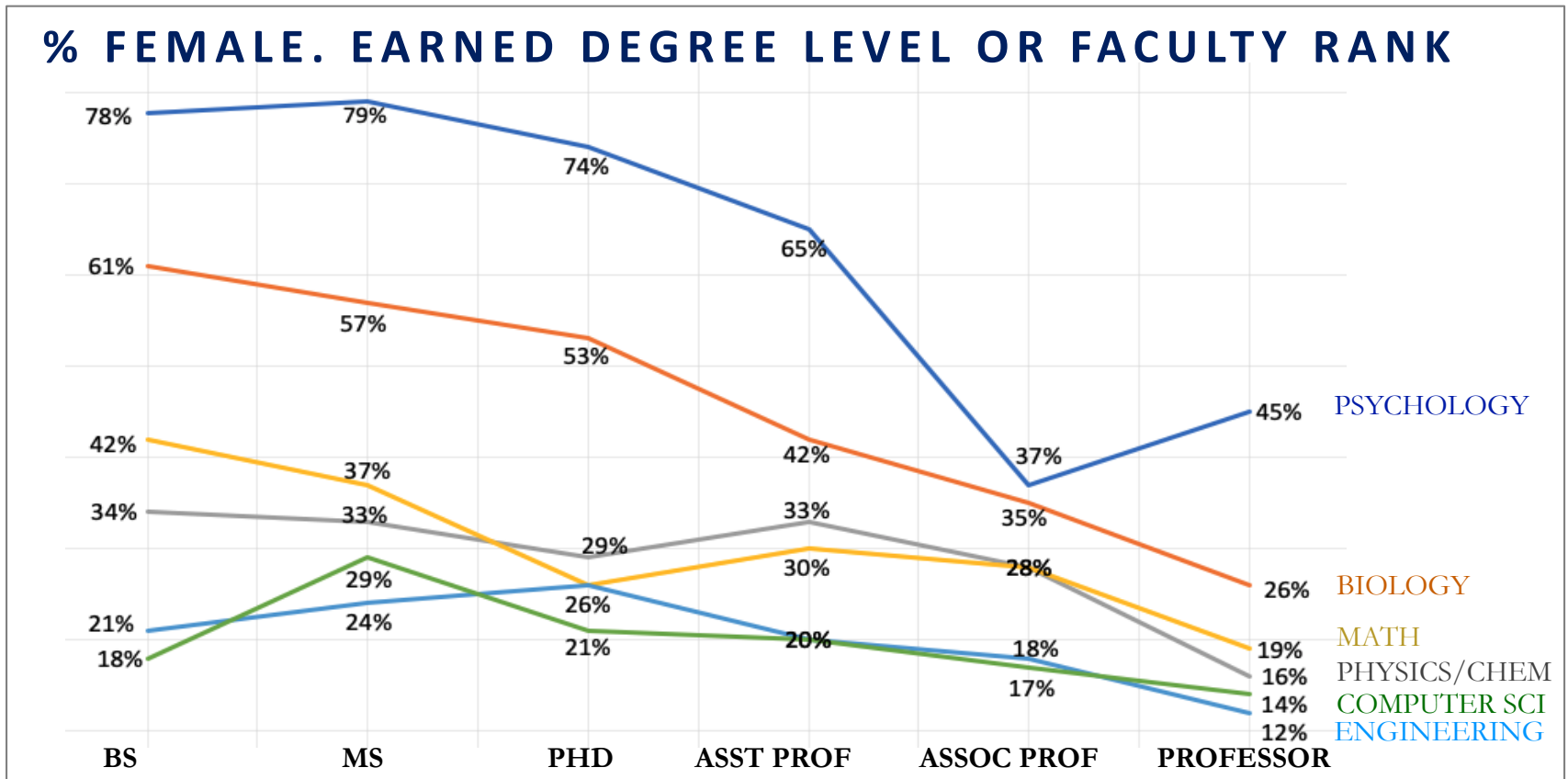
Source: The College Board, The 10th Annual AP® Report to the Nation—Subject Supplement. Science and Engineering Indicators 2016





The Leaky Pipeline

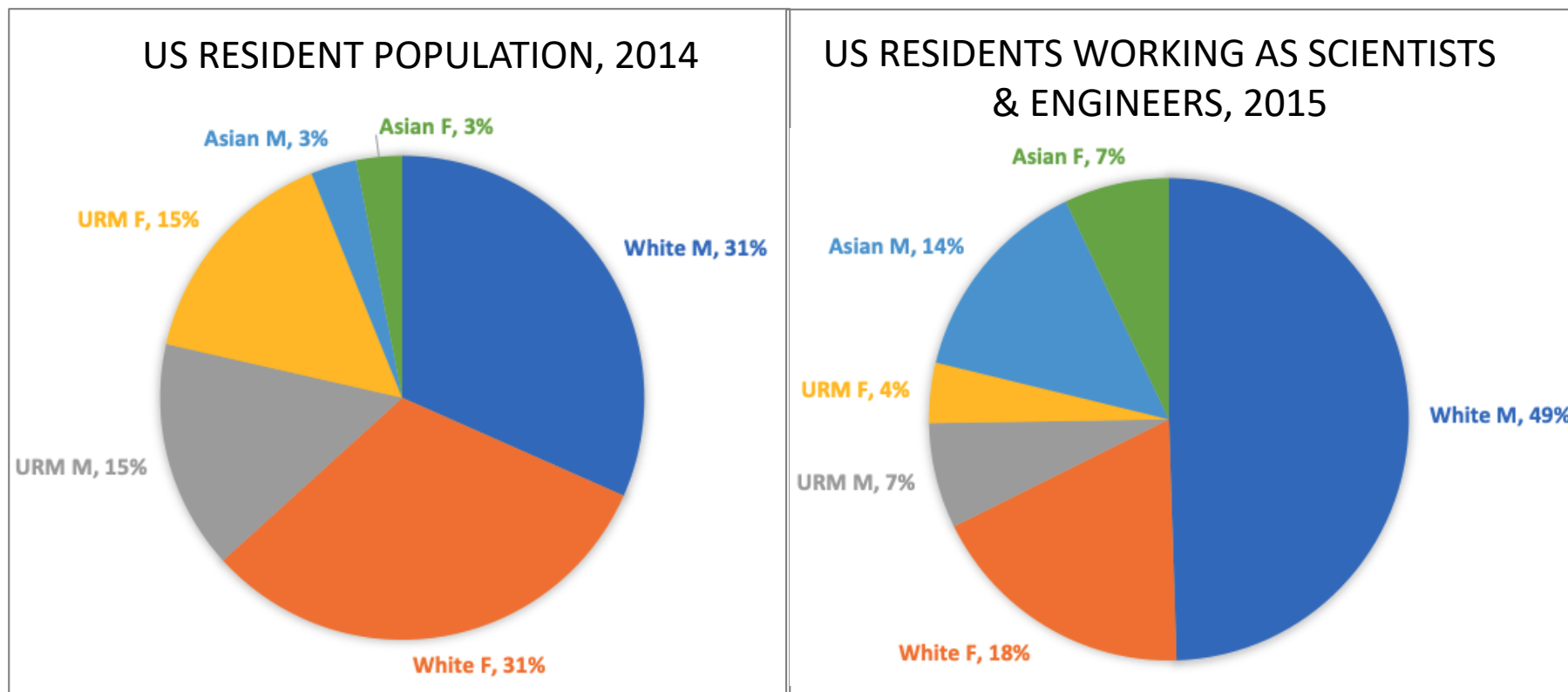
Female Representation Decreases With Increase In Academic Level



Source: NSF, Women, Minorities, Persons w/Disabilities in Science, 2019. US Citizens & Permanent Residents



Disparities are Compounded by Race/Ethnicity



Sources: NSF, Women, Minorities, Persons w/Disabilities in Science & Engineering, 2017; U.S. Census Bureau

Why The Leaky Pipe?

Some Important Factors

- Socialization & Gender Stereotypes
- Limited Role Models
- Need for more inclusiveness (work/school)
- Family responsibilities and priorities
- Evaluation (and other types of) bias





Why The Leaky Pipe?



Who belongs?



Why The Leaky Pipe?

Some Important Factors

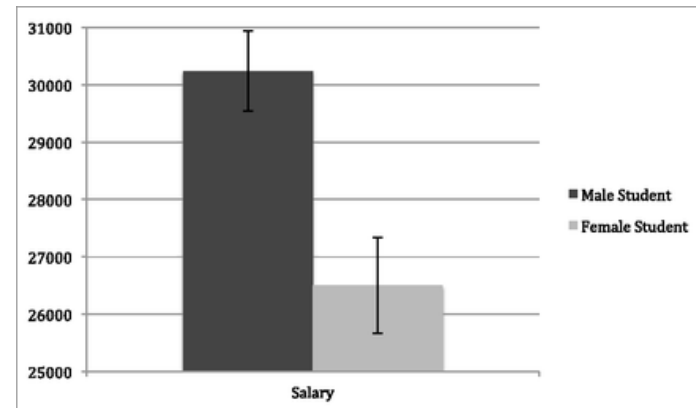
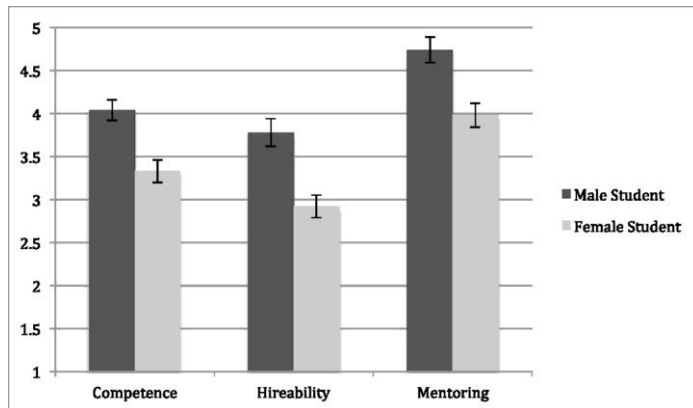
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Evaluation Bias Example

127 science faculty evaluated an application for a lab manager position.

- Half of the time, the application carried a stereotypically male name; the other half carried a female name.



- When the application carried a male name, the individual scored higher on all factors (competence, hiring, mentoring, salary).

[Moss-Racusin, et al., 2012; PNAS109:16474-16479](#)



What are some solutions?



UD NSF ADVANCE Institute.

Broad goals are to diversify and strengthen UD's faculty as well as foster positive departmental climates.

- Recruitment workshops & resources
- Formal mentoring workshops & resources
- Networking and leadership events for women faculty.
- Policy advocacy.
- Faculty climate survey and other institutional data analysis.

National Science Foundation ADVANCE-IT HRD 1409472



What are Some Solutions?

Change the culture

- More exposure to STEM for girls at early ages.
- Exposure to positive role models.
- Encourage gender equity in the home.
- Create welcoming academic / professional environments





What are Some Solutions?

Reduce the effects of implicit bias

- Raise awareness about implicit bias
 - when it is most likely to be at play,
 - how to reduce the effects of implicit bias.
- Blind evaluation
- Slow down; don't multi-task
- Rely on pre-defined evaluation criteria.





What are Some Solutions?

Change Policies and Practices

- Use data to document areas in need of improvement.
- Family friendly policies/practices (paid maternity leave or flex-time).
- Formalized evaluation metrics (raises, promotion, etc.).
- Formalized mentoring programs.
- Improved/more equitable recruitment practices.
- Leadership development.

Accountability is important!





Thank you!

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