



Representing Women and Diversity in the Field of Statistics

Jenine K. Harris, professor and researcher at Washington University in St. Louis, discusses the importance of women and diversity in the field of statistics and what she's doing to help bring more visibility to those groups.



Jenine K. Harris

Promoting women and diversity in the field of statistics is an overarching goal for Jenine K. Harris, PhD, associate professor at Washington University in St. Louis. Her passion for increasing representation is evident in every aspect of her professional life.

“Representation is one of the keys to promoting diversity,” said Harris. “When women are making decisions about college and career, they see few people like them in math and computer science fields, and so may be less likely to see themselves as a success in these fields. From early on in the educational process, girls and women are faced with a lack of role models and mentors in high demand data science fields.”

In fact, a 2017 National Science Foundation survey¹ of college graduates by gender and race-ethnicity groups found that white and Asian men held STEM jobs at a rate almost double the rate that of white and Asian women. Just as significantly, this gap has remained remarkably steady since at least 1993.

¹ <https://www.nsf.gov/statistics/2017/nsf17310/static/downloads/nsf17310-digest.pdf>

At the same time, the U.S. Bureau of Labor Statistics reports that the rise of data science needs will create 11.5 million job openings by 2026.² Unfortunately, without significant work to promote diversity in statistics, women and non-Asian minorities will still fill a disproportionately small percentage of these jobs.

Harris wants to change that. “If I can move the needle even a little, it will make a difference. Data science is an ideal career choice for women and others who have a passion for computers, math, and statistics. And perhaps as important as opening doors to rewarding job opportunities, promoting diversity in the field of statistics is good for society.”

² <https://www.bls.gov/careeroutlook/2017/article/occupational-projections-charts.htm>

“Having STEM jobs dominated by one group of people can result in biases that negatively impact research and product development,” Harris said. “Having a more diverse work force involved in statistical decision making and data management will bring different perspectives and insights into the process, increasing the quality of the work.”

Harris’s passion for promoting gender diversity in STEM is not new. As a math-loving child she lacked female role models, but was fortunate to have a mother who encouraged her interests.

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“The ‘leaky pipeline’ for STEM careers starts early,” Harris said. “Girls who love math in the early grades begin to drop off by middle school and dwindle further in higher education. “As a middle school math teacher early in my career, I did my part to ‘stem the flow’ by setting up the *Geogirls* math and technology club to support girls who loved math.”

Flash forward to today, where Dr. Harris is still passionate about promoting women and diversity in the field of statistics in every area of her professional life—as professor, researcher, leader, and author.

Professor: In every statistics class she teaches, Harris is cognizant of the importance of showing her students the impact of women who are doing statistical research and of women in industry who hold key positions in fields such as data science and data management.

“Increasing representation can be as simple as increasing the number of research articles written by women that are included as course readings. This exposes students to the contributions made by women in the field of statistics and provides role models that may allow them to see themselves in the field,” Harris said.

Researcher: One of Harris’s research areas is women/diversity in STEM. To explore the scope of underrepresentation at her university, Harris has worked with a team to collect syllabi from across her campus and examine them for readings assigned in the syllabi to determine the female/male ratio. Preliminary results are running at a ratio of nearly 3 to 1, men to women.

“Sharing the results of the study could encourage faculty to be aware of the current and potential representation of diverse voices in their courses. Perhaps next time they are selecting readings for a course, they might pay more attention to choosing readings from authors underrepresented in their fields, which is one relatively easy and practical way to address the diversity issue head on.”

Leader: In 2017, Harris founded the St. Louis chapter of *R-Ladies*, a worldwide organization that promotes gender diversity in the R community. “Like the entire field of statistics, the R community suffers from an underrepresentation of women,” Harris said.

“The goal of the chapter is to support and encourage our members by building a collaborative network of R leaders, mentors, learners, and developers. We do this through regular meet-ups bringing local data scientists, students, and other R-enthusiasts together for networking and practical skill-building workshops. Corporate sponsors such as Microsoft and NetEffects (a local IT placement firm) provide food and meeting space, which also increases networking opportunities.”

Author: In her just-published textbook, *Statistics With R: Solving Problems with Real World Data*, Harris uses three women as characters (a data scientist, a data manager, and a student) to introduce statistical topics.

Reviewers are enthusiastic about the characters, not only because they provide role models for women and people of color and increase representation, but also because they make the often-intimidating subject of statistics more approachable for students.

Learn more:



Statistics With R: Solving Problems Using Real-World Data