

# Mary Gray, the AWM and the value of mentorship

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**UNIVERSITY OF  
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# Mary Gray: an introduction



[www.american.edu/cas/faculty/mgray.cfm](http://www.american.edu/cas/faculty/mgray.cfm)

- 1 Professor of Mathematics & Statistics, American University, Washington D.C.
- 2 A statistician and lawyer with additional expertise in ethics, computer science, discrimination, education, affirmative action, human rights....

# Mary Lee Wheat Gray: an introduction



[www.american.edu/cas/faculty/mgray.cfm](http://www.american.edu/cas/faculty/mgray.cfm)

- 3 Fellow of the American Statistical Association, American Mathematical Society and the American Association for the Advancement of Science.
- 4 Founder and past-president of the Association for Women in Mathematics
- 5 past-president of the Caucus for Women in Statistics

# Mary Gray: an introduction



[www.american.edu/cas/faculty/mgray.cfm](http://www.american.edu/cas/faculty/mgray.cfm)

- 6 Recipient of the Presidential Award for Excellence in STEM Mentoring
- 7 Lifetime mentoring award, American Association for the Advancement of Sciences



- “Can statistics tell the courts what they do not want to hear? The case of complex salary structures,” *Statistical Sciences* 8 (1993), 144-179.
- “Statistics in Aid of Human Rights,” *Palestinian Conference on Modern Trends in Mathematics and Physics*, Birzeit University, Palestine, July 2008.
- “Statistics and the law: Will the twain ever meet?” *Proceedings of Joint Statistics Meeting 2007*, Salt Lake City, Utah, August 2007.

[www.imstat.org/sts/](http://www.imstat.org/sts/), [www.birzeit.edu/en](http://www.birzeit.edu/en), [ww2.amstat.org/meetings/jsm/2007](http://ww2.amstat.org/meetings/jsm/2007)

# What does it mean to do mathematics for social justice?

## The power of basic probability

A young man is on trial, accused of killing his infant. Recently, the man's second baby died suddenly in its sleep. Earlier, the man's first baby died of SIDS. As evidence of the supposed murder, the prosecution offers up the slim chance that two babies could have died of SIDS. Their argument is that the probability of a baby dying from SIDS is  $1/2000$ , thus the probability of two babies dying of SIDS is  $1/4000000$ , or almost impossible.

# What does it mean to do mathematics for social justice?

## The power of basic probability

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## The fallacy

The two events are not independent. The SIDS recurrence risk for siblings of SIDS victims is slightly higher than the risk for the general population.

# Mathematics, gender and the AWM



ASSOCIATION FOR  
WOMEN IN MATHEMATICS

<https://sites.google.com/site/awmmath>

- The AWM was conceived at the 1971 JMM in Atlantic City.
- At a MAG meeting, six women met and discussed the idea including Dr. Gray.
- Dr. Gray attended the AMS council meeting as an observer.
- Dr. Gray announces the Association of Women in Mathematics in the AMS Notices in February & becomes the first president.





[www.awm-math.org/articles/notices/199107/blum](http://www.awm-math.org/articles/notices/199107/blum)

## Gray's wants for women

- Equal consideration for admission to graduate school and support while there,
- Faculty appointments at all levels,
- Equal pay for equal work,
- Equal consideration in assignment of duties, promotion and tenure,
- Administrative appointments at all levels in universities, industry and government,
- Government grants, positions on review and advisory panels and positions in professional organizations.



## About AWM

- The purpose of the Association for Women in Mathematics is to encourage women and girls to study and to have active careers in the mathematical sciences, and to promote equal opportunity and the equal treatment of women and girls in the mathematical sciences.
- 20+ Policy statements
- Over 3000 members

# Mary Gray and mentorship

## Ruskai on Gray's Lifetime mentorship award

[For] ... the extraordinary number of women and underrepresented minorities she has affected in her career both directly and indirectly through the influence of her former students (34) and the programs she has initiated and developed.

## Citation for Presidential Award (NSF)

Dr. Gray has established an outstanding record in support of minorities and especially women in mathematics for more than thirty years at American University. ... Her students have gone on to lead illustrious careers, including academic administrative posts such as College Dean and Provost, and becoming active mentors themselves.

# Principles of mentoring embodied by Mary Gray

- 1 Available and supportive.
- 2 Mutual respect and sensitivity.
- 3 Encourages mentees to take increasing responsibility for their development.
- 4 Helps identify goals and challenges for mentees' growth.

Morale of the story:

Positive change.

# References

- 1 Bettye Anne Case, Anne M. Leggett, Complexities: Women in Mathematics, Princeton University Press, 2016.
- 2 Lenore Blum, *A brief history of the AWM: the presidents' perspectives*, AMS Notices, Vol. 38, No. 7, Sept. 1991, pp. 738-774.
- 3 Ruskai, Mary Beth, *Gray Receives AAAS Mentor Award*, AMS Notices, Vol 42, April 1995, p. 466.
- 4 NSF citation:  
[https://www.nsf.gov/awardsearch/showAward?AWD\\_ID=0122831](https://www.nsf.gov/awardsearch/showAward?AWD_ID=0122831)