

# Professor Interrupted: Gender Differences in High Level Engineering, Science and Math Institutions

June 12 2009, by Mary Anne Simpson

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A soon to be released exhaustive study entitled "Gender Differences at Critical Transitions in the Careers of Science, Engineering and Mathematics Faculty (2009)" published by The National Academies Press finds improvements in the representation of women in Science and Engineering at the PhD level. However, there remains significant gaps in the representation of women in certain disciplines at the Associate and Full Professor level in R1 and R2 institutions. Interestingly, women candidates applying to the very top level R1 institutions fare better than R2 institutions.\*

In the pool of doctoral candidates, women have fared better in the health sciences and Biology representing approximately 45-percent of the entire pool of PhD candidates. Women were least represented in Electrical Engineering at 12-percent, Physics at 14-percent, Civil Engineering at 18-percent, Mathematics at 25-percent and Chemistry at 32-percent of the PhD pool. In certain disciplines, women applicants remain woefully low as compared to male counterparts. The current study finds that while there are positive signs in opportunities for men and women in tenure track associate and full professorships in these key fields more flexibility is needed in critical junctures of professional development.

One idea discussed is the ability of associate and assistant professors be allowed to work part-time. Traditionally, associate professors in R1 institutions are required to work full-time. The ability to attract

candidates with significant personal obligations whether it be caring for the young or elderly parents may increase the number of highly qualified individuals to apply. Other means of nurturing candidates include an active mentoring component and less rigidity by providing clock-stopping for life events which in effect interrupt the career path of academics.

The 2009 study, which includes surveys from 1800 departments for the period of the mid-1990s to 2005, updates current interim studies and supplements the 1999 report, "A Study on the Status of Women in Science at MIT. There has been growth in the representation of women in tenure track academic positions in major research institutes. However, as of 2003 women only represent between 6 and 29-percent of all Associate and Full Professor in science and engineering. In some disciplines women simply do not apply.

Preparing [women](#) for careers in upper level, R1 institutions may begin as early as middle school and high school. The study examines key periods of transition for a career including applicant pool, hiring, retention, social fraternization and presents a mix bag of equality in opportunities but disparity in the overall end results. The 154-page report with nearly 200 pages of appendices should be prime reading material for academic institutions with a desire to meet the challenges of the 21st century.

Source: [Gender Differences](#) at Critical Transitions in the Careers of Science, Engineering and Mathematics Faculty (2009)

\*List of Research Institutes in Study:

[www.nap.edu/openbook.php?record\\_id=12062&page=197](http://www.nap.edu/openbook.php?record_id=12062&page=197)

Citation: Professor Interrupted: Gender Differences in High Level Engineering, Science and Math Institutions (2009, June 12) retrieved 23 April 2024 from

<https://medicalxpress.com/news/2009-06-professor-gender-differences-high-science.html>

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