

U.S. HIGHER EDUCATION

Report Finds No Gender Bias in Faculty Hiring, Resources

A new report by the U.S. National Academies says that women are getting a fair shake from major research universities in being hired, promoted, and given access to resources—once they can grab onto the academic ladder and start climbing the rungs.

That conclusion may surprise those familiar with a stream of recent reports on the topic, including a 2006 academies' study that demanded an end to what it called the "bias and outmoded practices" hindering the progress of women in academic science. The good news, says the report, is that "men and women faculty ... have enjoyed comparable opportunities, and gender does not appear to have been a factor in a number of important career transitions and outcomes." The bad news, however, is that too many scientifically trained women are rejecting academia in favor of other career paths.

"I'd hate for anybody to read this report and think that we can be complacent," says physicist Claude Canizares, vice president for research at the Massachusetts Institute of Technology in Cambridge and co-chair of the new report, *Gender Differences at Critical Transitions in the Careers of Science, Engineering, and Mathematics Faculty*. "While women can take some encouragement from the fact that

there is no evidence of large-scale bias at these key transition points, the reasons for their continued underrepresentation need to be examined more closely."

The study, requested by Congress in 2002 and supported by a \$1.3 million grant from the National Science Foundation, focuses on three important transitions: getting a tenure-track position, winning tenure, and being promoted to full professor. It's based on surveys of 500 departments at 89 institutions and of 1800 faculty members in those departments. Although legislators had initially wanted a sweeping review of "gender differences" among all faculty members at all institutions, the academy panel decided to save time and money by concentrating on full-time faculty members from six disciplines—biology, chemistry, civil and electrical engineering, mathematics, and physics—who work at the top tier of research universities.

Within that population, the panel found that women are actually more likely than men to be interviewed for and offered tenure-track jobs (see graphic, p. 1251) and just as likely to be successful when they come up for tenure. But taking the first step is where the problems seem to lie. According to the report, many fewer

women bid for tenure-track positions than would be expected based on their proportion of the Ph.D. pool. Although university outreach efforts had no apparent effect on attracting more women applicants, one factor did make a difference: Women are more likely to apply if a woman is chairing the selection committee or serving on it.

Once women take the job, they also often face a tougher climb up the ladder than their male colleagues. The survey found that faculty women "were less likely to engage in conversation with their colleagues on a wide range of professional topics," including research, salary, and benefits. The panel also found that women remain assistant professors significantly longer and that the attrition rate is higher before coming up for tenure.

Donna Nelson, a chemistry professor at the University of Oklahoma who has done pioneering work on the status of women in academic science, says that the panel's findings match what she hears on campuses. "Women tell me all the time that they feel isolated. It's harder to feel good about your work, and be productive, if you're not being included in conversations and collaborations." Nelson also emphasized the need for more women applicants to entry-

NEWSMAKER INTERVIEW

Eugenie Scott Toils in Defense of Evolution

As executive director of the California-based National Center for Science Education, anthropologist Eugenie Scott has spent the past 2 decades on the frontlines of the contentious battle over teaching evolution in U.S. public schools. She doesn't confine herself to the classroom and courthouse: Every year, she and geologist Alan Gishlick lead a rafting trip through the Grand Canyon, teaching a general audience about the science and natural history of the canyon and comparing the evidence with the creationist explanation of its origins.

Last week, Scott won the inaugural Stephen Jay Gould Prize from the Society for the Study of Evolution, only weeks after *Scientific American* ranked her among the country's top 10 science and technology leaders for her self-described role as "Darwin's golden retriever." Scott spoke to *Science* last week about where things now stand.

—YUDHIJIT BHATTACHARJEE

Q: How has this battle changed in the past 20 years?

E.S.: The enemy has become more diverse. When I started, it was just creation science. Now we have creation science, intelligent design [ID], and straight-up antievolution in the form of "evidence against evolution." It used to solely be a K–12 issue. Now we are seeing that it crops up frequently in community colleges and even 4-year colleges.

Q: What's the current situation in the various states?

E.S.: Besides periodic assaults on science standards as we recently saw in Texas, we are concerned about antievolution legislation in different states under the guise of academic freedom bills. Just in the last few weeks, antievolution bills awaiting decisions in a number of states—Oklahoma, South Carolina, Alabama—died in com-



Hard facts. Eugenie Scott leads rafting trips through the Grand Canyon.

mittee. Louisiana passed antievolution legislation last year; we're now waiting to see how it plays out. We are also seeing closet creationism being introduced through wording not obvious to those unfamiliar with the history of the controversy.

Q: Why has the ID movement survived the 2005 Dover trial?

E.S.: ID proponents have repackaged ID



From the Science Policy Blog

A call to include damage to oceans in climate policy, a trio of new government ministers in India, and a contrarian analysis of swine flu data were among the stories covered by *ScienceInsider* in the past week.

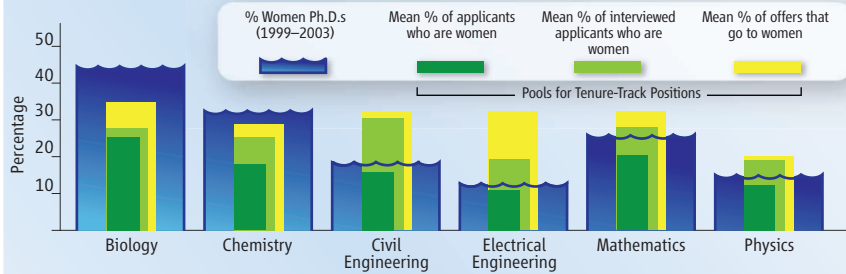
Scientific academies have joined forces to warn world leaders about the **dangers of ocean acidification**. The InterAcademy Panel on International Issues, with members representing 69 countries, issued a statement this week recommending that the United Nations Framework Convention on Climate Change take up the issue before the U.N. Climate Change Conference in Copenhagen in December. The oceans are absorbing a quarter of industrial emissions of carbon dioxide, increasing their acidity and harming marine life.

India's **prime minister, Manmohan Singh**, has named leaders with deep technical expertise to his cabinet. The new science minister is Prithviraj Chavan, a politician from western India who was educated as a mechanical engineer at the University of California, Berkeley. Singh appointed Kapil Sibal, a lawyer and respected former science minister, as minister of human resources development, which includes the education portfolio. Mechanical engineer Jairam Ramesh becomes minister of environment and forests.

ScienceInsider's ongoing coverage of the **swine flu outbreak** includes an analysis that contradicts the view of the U.S. Centers for Disease Control and Prevention that cases in the country might have crested. Donald Olson, a New York City-based epidemiologist who runs the influenza monitoring project at the International Society for Disease Surveillance, says his data show "massive increases" in Boston and New York City, which look "mild" in the CDC regional data. Olson says New York City's drop and then rise in cases may soon be repeated around the country.

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STAYING AFLOAT IN ACADEMIA



	TENURED		TENURE TRACK	
	Actual % of All-Male Interview Pools	Probability of All-Male Pools	Actual % of All-Male Interview Pools	Probability of All-Male Pools
Biology	25	18	22	24
Chemistry	50	24	22	37
Civil Engineering	46	35	33	42
Electrical Engineering	42	62	35	56
Mathematics	39	44	13	33
Physics	32	35	38	50

Job hunting. Women are underrepresented in the applicant pool (*top*), but once in the running, their chances generally improve. The exception is for tenured jobs (*above*) in biology, chemistry, and civil engineering.

level, tenure-track positions. "If universities narrow the pool at the onset," she notes, "then women will have a harder time even getting on the radar screen."

Canizares said that the panel took the unusual step of conducting its own research because "there were no data to answer the

questions we were interested in addressing." He hopes that federal agencies and universities will recognize the need to gather longitudinal data on the career paths of women. "And I'd suggest that we start with our own graduate students."

—JEFFREY MERVIS

and are promoting it as "evidence against evolution." The Discovery Institute, an ID think tank, has published *Explore Evolution* that quotes a "number of problems" with evolution that they would like taught in biology class. Of course, these are standard creationist arguments.

Q: Why hasn't the general public rejected ID?

E.S.: Only 40% of adult Americans understand the nature of a scientific experiment. Remember that ID is primarily a marketing strategy to the general public, and unless that is directly opposed, people are going to be miseducated about science. We don't have to worry about medical schools teaching that AIDS is a curse from God, but we have to worry about teachers teaching well.

Q: Why is it important to teach evolution? Can't doctors and most life scientists do their jobs without accepting evolution?

E.S.: You can be a mechanic without understanding the niceties of the internal com-

bustion engine. [But] wouldn't you rather go to a mechanic who has the big picture?

Q: What should scientists do to help the cause?

E.S.: Universities need to do a better job of teaching evolution because that's where high school teachers get their training. Evolution needs to be brought into every course of biology instead of getting tacked on as a unit to the intro class.

What university scientists should not do is to force students to choose between religion and science. If a professor were to say that evolution proves there is no God, that's not just bad philosophy of science, it ensures that a significant number of students will stick their fingers in their ears.

When explaining biological questions, such as the evolution of the eye, there is no need to say that God had nothing to do with it. It's an irrelevant comment. I don't think a classroom is an appropriate place to try to create more atheists any more than it is an appropriate place to create more fundamentalist Christians.