EL PASO COLLABORATIVE

Great expectations. All students in El Paso, Texas, public schools are expected to do science and math.

curtails defense spending; and the lifting of the mandatory age for retirement, which slows turnover at universities.

The result of those changes is that many of the 3800 science and engineering doctoral students surveyed for Fox's study were glum about their prospects for finding university research positions, particularly in physics and chemistry. And women and minorities, who already drop out of science in greater numbers than men do, are the most easily discouraged, because they start out with uncertainty about whether they "belong," says sociologist Elaine Seymour of the University of Colorado, Boulder. The result, says Fox, is that the economic and political changes are "a closing of the door, so minorities and women don't have access to careers in science."

Even before the jobs are gone, the perception of a tough market may deter students, says Rosser, who now directs a women's studies center at the University of Florida, Gainesville. Already, the number of freshmen who enrolled in engineering last fall is "way down" for both men and women, says Linda Sax, associate director of the Higher Education Research Institution at UC Los Angeles, which surveyed 240,000 freshmen at 473 colleges. Ironically, there are still jobs in engineering.

Strategic planning. Given the economic uncertainty, policy-makers are changing their tactics even before the ax falls on their programs. Heeding Williams's warning, Parker is seeking funds from the CUNY administration and other new sources. "Every time you get money from the government, you better figure out how not to depend on it," he says. Commitment from institutions themselves is critical. "I didn't agree to do this job unless there was institutional commitment behind it," says Parker.

But even where the highest echelon of an institution turns its back on affirmative action, administrators can still take steps to increase diversity, as shown by Berkeley Chancellor Chang-Lin Tien. In the face of the regents' order to end preferential treatment in admissions, Tien has begun a program called the Berkeley

ADVICE *from the* TOP

Learning the Trade Secrets

NSF

Anne C. Petersen

The first time Anne C. Petersen submitted a grant proposal to the National Institutes of Health, she was turned down. Like many first-timers, she didn't know the usual routine—revise and resubmit—and she fired off an angry rebuttal to reviewers, an act not likely to improve her chances in the next round. Fortunately, the program officer clued her in. "She phoned me to say that she was tossing [my letter] in the trash and suggested the effective way to respond," says Petersen. Without an insider's help, Petersen would have made a costly mistake.

Today, as deputy director of the National Science Foundation and one of the most visible scientists in the nation, Petersen remains keenly aware that to succeed in science, the unwritten rules are at least as important as the official ones. And she considers it part of her job to help women and minorities—the newcomers to science—learn the "trade secrets" of the scientific world. Knowing the ropes is more important now than ever, she says, as those who lack street smarts may be trampled into the mud by the ambitious herd when times are tough.

Petersen, 51, entered science without understanding exactly what she was getting into. She chose to earn a Ph.D. in statistics and measurement, in part because she was planning a family and she thought academic life would give her time to be a traditional mom. "I had this fantasy that being a Ph.D. meant you had your summers off," she says. But she quickly learned differently. After getting her degree (from the University of Chicago) and a new daughter in one year, she worked such a hectic schedule as a researcher at Chicago that she and her husband arranged a tag-team system of child care, meeting daily at the train station and handing the baby across the turnstile to one another.

A native of Little Falls, Minnesota, Petersen has a natural, open quality, but she also has the mind of a politician: She's quick to understand the power structure. That helped her avoid a possible career dead end at Chicago. As an associate professor in the Department of Psychiatry, she won her own grants as a psychometrician and did research on adolescent psychology. But the department wasn't expanding, and she realized that without an M.D., she would never get tenure. So in 1982, Petersen jumped ship to be a department chair at Pennsylvania State University, where she later became a dean. In 1992, she moved to the University of Minnesota as dean of the graduate school.

In every job, she made sure that those who worked for her understood the tricks of the trade. Often, Petersen says, minorities and women are sought after for teaching, advising, and committee work—and somehow miss the message that in many schools what really counts for promotion is research. As department chair, she made sure all junior faculty "knew what they needed to know." For example, at Penn, a black sociologist was in such demand that her academic future was in danger. Instead of letting her sink or swim, Petersen stepped in, moving the woman's office to a more out-of-the-way place and fending off researchers seeking only a minority name on their grants.

In another instance, Petersen was asked by a university department to consult on why none of the women made tenure despite their strong credentials. She talked to the faculty and discovered that professors often took newly hired men out for a beer or a squash game, all the while passing along valuable information such as the idiosyncrasies of the department chair. But this didn't happen with women. "It was clear the women had no informal socialization, so they really weren't learning the ropes," she says.

Sometimes, not knowing the ropes can have a measurable effect on careers—and salaries, says Petersen. In her first year at Penn, she was amazed at how differently men and women responded to their salary increases. "Several men came in after to complain, but no women did. ... Two women told me that I had given them more than they deserved! [They] felt that they were appropriately expressing their gratitude. ... They did not realize that their manifest message was that they could have been given less." Whether the goal is to win grants or a bigger paycheck, says Petersen, women who understand the informal rules of the game are more likely to succeed.

–Constance Holden