





WHEN TENURE FAILS

Toni Feder

The prospect of losing out on tenure can be frightening. But many who have been denied tenure have gone on to build successful careers in education or elsewhere.

As an assistant professor at Stanford University in the early 2000s, Adina Paytan brought in grants, trained graduate students, and was a popular teacher. She received an NSF CAREER award and a NASA New Investigator award. She was recognized by the American Geophysical Union for early-career excellence in oceanography. The dean of Stanford's School of Earth Sciences told her she was in the top 20% of faculty in the school. "They told me I was walking on water," says Paytan. So in 2006 the news that she was being denied tenure came as "a total shock."



GLACIOLOGIST DERRICK LAMPKIN, shown here on a trip to Antarctica in 2011, when he was an assistant professor at the Pennsylvania State University. His spectral measurements contributed to the development of satellite-based algorithms for retrieving geophysical properties that document effects of regional warming. Lampkin was denied tenure at Penn State, and again after starting over at the University of Maryland. He is now a scientist at NASA headquarters and NASA Goddard Space Flight Center. (Courtesy of Derrick Lampkin.)

A biophysicist who requested anonymity still keeps with him the letter from a decade ago informing him that he had lost out in his bid for tenure in the physics department of a large, public US research university. It was one of just two tenure denials in that department in 25 years. The news was devastating, he says, and made him question whether he was cut out for a research career.

When the University of Chicago denied tenure to cosmologist Sean Carroll in 2006, he was caught off guard. “These are your friends and colleagues, and now they want you to leave,” he says of the department faculty members that voted him out. “I had gotten messages of ‘no problem,’ but it turns out they thought they could do better,” he says.

An assistant professor typically goes up for tenure in their fifth or sixth year on the job. Tenured faculty are guaranteed employment; they can be let go only in extreme circumstances, such as if they commit a crime or their department folds. “I have watched the tenure system up close for 40 years,” says Meg Urry, director of the Yale Center for Astronomy and Astrophysics. “It’s important because of the vulnerability of people trying to generate new knowledge. Scholars should be free to pursue ideas regardless of whether [the ideas] happen to be popular.”

The requirements for tenure involve research, teaching, and service, for which the bar and balance vary. The details are deliberately fuzzy in order to encompass variations across disciplines. An unwritten requirement is that a candidate be a “good fit.”

David Helfand has served as chair of astronomy at Columbia University and chairs the board of the American Institute of Physics (publisher of *PHYSICS TODAY*)—and has himself steadfastly refused tenure.¹ At Columbia, he says, “there is a 30-page handbook that lays out the rules. But it’s always a value judgment.”

Tenure denials are uncommon, and statistics about them are scarce. A 2012 study by Deborah Kaminski and Cheryl Geisler tracked 2966 assistant professors in science and engineering fields at 14 US universities.² The authors found that about 64% were promoted to associate professor—which typically coincides with earning tenure—at the same institution

and that less than half of those were retained, with the median time to departure being 10.9 years. Other studies, including ones cited by Kaminski and Geisler, show that men are more likely to receive tenure or to leave academia, and women are more likely to move to adjunct positions or to be unemployed.^{3–5}

Although every case is unique, some patterns have emerged from conversations I have had with a few dozen academics in physics and adjacent fields who were denied tenure, left before going up for it, or have served on committees that decide on tenure. I also spoke with scholars who study tenure and academic climate.

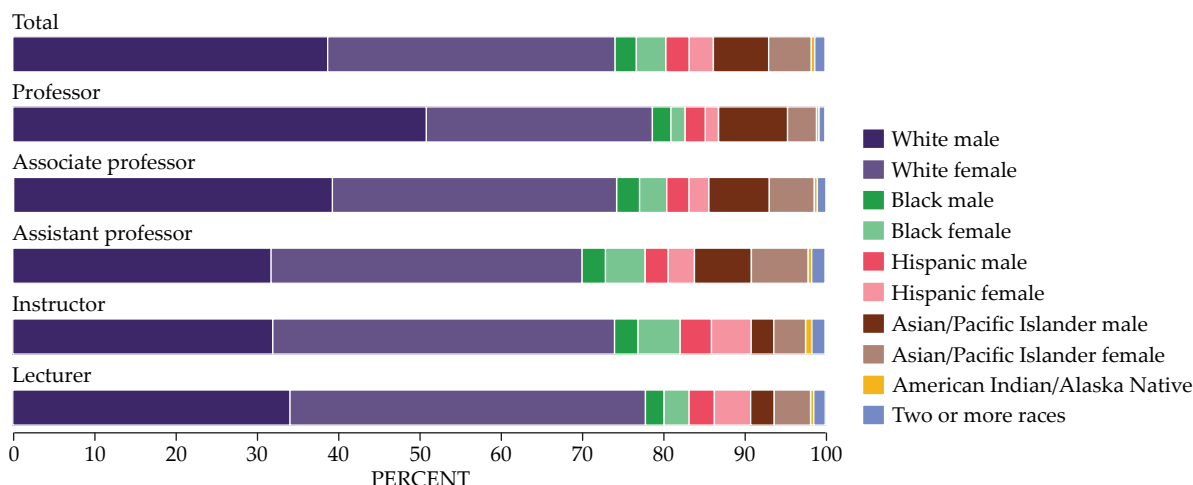
Despite the low numbers, most academics can point to a tenure-denial case or two. From the point of view of an assistant professor aspiring for tenure, says Filomena Nunes, a theoretical nuclear physicist at Michigan State University who has served for years on the College of Natural Science’s reappointment, promotion, and tenure committee, even when all seems to be going well “the tenure process induces anxiety.”

By the time researchers are on the tenure track, they’ve made a huge investment in an academic career. The institutions, too, have put in significant time and money in hiring them. At US research universities today, startup packages for new faculty in theoretical physics can be several hundred thousand dollars, and in experimental physics, between \$1 million and \$2 million is the norm. So what are the implications for assistant professors who are denied tenure or leave before going up for it? And what sorts of careers do those scholars pursue?

Significant statistics

University-wide, Columbia awards tenure 96% of the time, according to Helfand. In astronomy over the last 40 years, he adds, the rate has been nearly 90%. Elliott Cheu, a particle physicist, cites a success rate exceeding 90% in the College of Science at the University of Arizona in 2008–19. For most of that period, he was the associate dean; he is now interim senior vice president for research and innovation.

But numbers like those Helfand and Cheu quote may not be representative of different types of departments and schools, and they exclude people who leave before going up for tenure. That omission skews the broader picture, given that some peo-



FACULTY BREAKDOWN by gender, race, and academic rank is shown for the 1.5 million faculty who worked at degree-granting postsecondary institutions in the US in fall 2020. Of those, 56% were full time, and 44% were part time. At the higher, tenured ranks, white men were better represented than white women and all other groups, but the gender breakdown among nonwhite faculty members is more even than among white ones. Women were equally or better represented than men at the assistant professor level and in the non-tenure-line, lower-ranked positions of instructor and lecturer. (Fast Facts, “Race/ethnicity of college faculty,” 2022, <https://nces.ed.gov/fastfacts/display.asp?id=61>.)

ple hop off the tenure track because they suspect—or have been advised—that their tenure bids will fail.

Indeed, many faculty and academic administrators say that leaving before going up for tenure is more common than being denied it. In the past 10 years, the Pennsylvania State University has granted tenure to nine people and hired two with tenure in the physics department, says Miguel Mostafá, an astrophysicist and associate dean for research and innovation there. In that same period, he says, there were no denials, but two assistant professors were “gently” urged to move on. In abandoning the tenure track, candidates avoid the stigma of a denial, are more likely to be hired into a nontenured position at the same institution, and retain a higher chance of landing a tenure-track position elsewhere.

“There is a formula for estimating the probability of getting tenure,” asserts particle physicist Michael Witherell, who was denied tenure by Princeton University in 1981. “If there are seven times as many tenured as tenure-track faculty, then the probability for tenure approaches 100%.” As that ratio drops, so does the rate of awarding tenure, he says, and when the number of tenure-track faculty in a department outnumbers the tenured faculty, the chances of being awarded tenure are slim.

When Witherell was up for tenure at Princeton, it and a few other elite institutions were known for hiring large cadres of assistant professors but awarding tenure to perhaps just one in five, according to several physicists who tried their luck. Denial still stung, says Witherell, although he and most of the others I spoke with went on to have successful careers. For his part, Witherell joined the faculty at the University of California, Santa Barbara, and a few years later was wooed by both Princeton and Harvard University. He served as director of Fermilab for six years and now holds the top job at Lawrence Berkeley National Laboratory.

Unspoken rules

Plenty of evidence shows that underrepresented groups face increased barriers to receiving tenure. At most top universities,

Urry says, tenure bids are evaluated on seven criteria: publications, citations, teaching evaluations, letters of recommendation, prizes, invited talks, and grant money. Studies have shown that each of those criteria has been biased against women.^{6–8}

“I don’t have statistics,” says Urry, “but in the departments I’ve been in, it’s the women’s cases that get picked on.” The interpretation of external letters is “often a highly subjective activity,” she adds. Most places also look at service—committee work, mentoring of students, and leadership in diversity, equity, and inclusion initiatives.⁹ “My impression is that women do much more service, so maybe it isn’t surprising that it doesn’t count for much.”

The way impact is counted is subjective, says glaciologist Derrick Lampkin, who was twice denied tenure. “It’s made to look quantitative—grants, publications, graduates, h-indices, and so on. But people game the metrics.” For example, he says, “gaining entrance into groups of colleagues who reference each other’s papers and advocate for each other’s work among peers will help your numbers. And it depends on your inclusion in the research community.”

The tenure process needs to be reformed, Lampkin continues, noting that it “disproportionately results in the loss of women and underrepresented minorities that would have been important in driving the pace and quality of discovery.”

NiCole Buchanan is a psychology professor at Michigan State University who studies exclusionary practices in evaluating faculty research. “If you know the rules, the unspoken language of academia, you are deemed more prepared, you are more accepted,” she says. People who are not versed in academic culture are more easily excluded—from lunch, collaborative research projects, grant applications, and the like.^{10,11} “It’s not random who that happens to,” says Buchanan. “If you are queer, a woman, or a faculty member of color, you are given subtle and not-so-subtle messages that you don’t belong.” (For more on how gender, race, and ethnicity affect tenure success rates, see the article by Rachel Ivie and Susan White on page 36.)



SARAH ACIEGO was fed up with academia and left the University of Michigan shortly before she would have gone up for tenure. She has since cofounded Arcus Aero, a company based in Bridgeport, Texas, that restores vintage aircraft. She is shown here with a 1952 DeHavilland Beaver. (Courtesy of Darrin Adkins.)

reports, redacted summaries of outside letters, and summaries of faculty discussion, and they can respond. “I can’t imagine 100% transparency,” says Yaffe. The point is to have frank discussions of a candidate’s strengths and weaknesses, he says, and in large departments “it’s common to have some faculty who don’t like the candidate’s endeavors.”

Only in the rare cases in which a lawsuit is initiated are the inner workings of the process revealed. Most of the time an understanding of the outcome is dominated by the vantage of the candidate—and even that is limited to candidates who are willing to share their experiences. As Carroll says, “I wasn’t in the meetings. I don’t really know why I was denied tenure.”

Still, details often trickle back to professors whose tenure bid has been denied. Or they may piece together explanations from what they know of their own performance and experiences, their department, and their university.

Missteps to tenure

“To me it seems that roughly 5–10% of candidates are so good, they have to get tenure,” says Urry. A similar percentage of candidates hasn’t produced enough to win tenure, she continues, “but the vast majority could go either way, depending on how people spin it. It’s kind of arbitrary.”

“In many cases the people who are denied tenure are as good, and sometimes better, than the ones who get tenure,” says Urry.

Aside from rare clear-cut cases of inadequate research or teaching, tenure may be

denied if a candidate is perceived to be spending excessive time on activities that don’t count toward tenure. Carroll believes that writing a textbook figured into his denial.¹²

Tenure might also be denied if a powerful faculty member feels threatened by the research of a more junior colleague. Becoming mired in departmental politics can thwart a candidate’s promotion prospects. So can introducing innovative teaching methods, which voting faculty may see as criticism of their own approaches. Based on interviews, denials in the US to noncitizens and to people hired into the tenure track directly out of graduate school seem disproportionately high, perhaps in part because such candidates are less tuned into the academic systems they join.

A person’s bid for tenure can fail if a department loses interest in their subfield—even one they were hired to build up.

Exclusionary behaviors spill into attitudes toward research topics, says Buchanan. “Our studies show that when people do work on the margins, it can be identified as groundbreaking and amazing. Or it can be marginalized. That even applies in physics.”

Sometimes research may be viewed as too far-out; assistant professors are commonly advised to keep their investigations mainstream. And even when they do so, says Urry, “they can be dinged for not having done something paradigm changing.”

The tenure process is nearly always shrouded in secrecy, leaving the denied candidate with incomplete information and a lack of explanation. Even public institutions redact the tenure dossier. Still, the process is more open than it used to be, says Laurence Yaffe, chair of physics at the University of Washington in Seattle. At his university, candidates receive committee



David Meltzer was hired with tenure in 2008 at Arizona State University. In 2016 he joined the university's College of Integrative Sciences and Arts, where he continues to focus on physics-education research. He had previously been denied tenure in physics at Iowa State University. (Courtesy of Arizona State University.)

For cases in which an assistant professor is supported by an outside entity, a department may be grateful for the temporary funding stream—or it may take advantage of the free teaching and drop the person when the tenure decision comes around and the department is expected to step in with financial support. Lampkin suspects that's what happened to him in the department of atmospheric and oceanic science at the University of Maryland in 2019.

Lampkin's first tenure-track position was at Penn State, straight out of graduate school. He had collaborations, publications, students, and more than \$1 million in grants. But, he says, he lacked the network and political intuition that he might have had as a white man or someone from a family steeped in higher education. He had been brought in as a diversity hire, he says, and as he later learned, the department chair had offered him the job before holding a faculty vote, which may have caused resentment. When the tenure decision went against him, Lampkin says, the dean told him, "Your colleagues don't want you here. You are not a good fit. But you will do a great job elsewhere."

He started over at Maryland. There, he says, his research continued to flourish, but for four years he was not assigned to teach in his own research area—something he would need for his tenure bid. Moreover, Lampkin says, his tenure case was rife with procedural errors, such as his department's losing his

third-year review, which had been positive and was supposed to be part of the package. During his appeal of the denial, a colleague who was upset with the process leaked details, says Lampkin.

The denials themselves were devastating, Lampkin says. "I lived through protracted depression. It placed severe emotional and financial stress on my family. It impacts your whole life." Today Lampkin provides program science support to NASA and keeps a hand in research.

Paytan likewise attributes her denial to sabotage on the part of a more senior colleague and to campus politics that dissuaded other faculty from intervening on her behalf. The colleague had "said out loud that he'd make sure I wouldn't get tenure," she says. She had also spoken out on other issues, like maternity leave for students. "It's an issue of personality. I managed to piss off someone with power," she says.

"Despite my documented success in research and teaching, my department was dysfunctional and was not willing to stand up to the 'sabotaging' person," says Paytan. When Stanford denied her tenure, students from the department protested.

Paytan now works at the University of California, Santa Cruz, in the Institute of Marine Sciences. Not on a tenure line, she supports a large research group on grants. The work climate at Santa Cruz is better, she says, and she calls her tenure denial a "blessing in disguise. I wouldn't have left Stanford

otherwise.” With nearly 17 000 citations, she is currently ranked 204th in the US and 362nd in the world among the top 2000 Earth sciences researchers by Research.com. Being denied tenure “was devastating,” says Paytan. “But it did not damage my career because I always knew that it was not me, but the system, that is bad.”

Exiting pretenure

Ingrid Novodvorsky joined the physics department at the University of Arizona in 1999 as part of a new program to train high school science teachers. The chair favored building up physics-education research in the department, she says. “But once I got into the department I realized that wasn’t a common opinion.”

Novodvorsky says she “never got much research mentoring” and that hostility in the department was obvious: “Walking down the hall and nodding hello and being ignored was not subtle.” She saw that the senior physicists resented her introducing “evidence-based teaching—clickers, peer teaching, and other stuff we know makes learning effective.”

Her third-year review was favorable, but by 2005, the writing was on the wall. Her department chair and the director of the teacher preparation program suggested she move into a position that would report directly to the associate dean. She took the job, happy to continue working in education. She never went up for tenure. “It didn’t seem worth the risk.”

In 2010 Sarah Aciego started a tenure-track position at the University of Michigan in the department of Earth and environmental sciences. Her research was in isotope geochemistry on ice cores. Things “went sideways quickly,” she says. Soon after she started, a colleague with whom she was supposed to share a lab departed, leaving the responsibility for it on her shoulders. A flood in a clean room hiked costs and delayed her getting the lab up and running by two years. Later, Aciego had a graduate student who “wasn’t willing to be mentored by me.” Her department insisted she continue as his adviser, she says.

Despite the setbacks, Aciego had won a prestigious Packard fellowship and other grants, and she was advising students, doing research, and publishing. But, she says, “I was being dragged down and not getting support from my department. It was like death by a thousand cuts.”

Aciego started a business leading tours in extreme environments. She took up flying. Then she left her tenure-track job to manage a 10 000-acre dude ranch with 50 horses and 400 cattle. She also worked as a freelance editor. Now she and her partner have a business restoring vintage aircraft near Fort Worth, Texas. Her goal is to fly an air ambulance for a children’s hospital. Aviation, she says, “is technical and uses scientific curiosity to solve problems.”

Being awarded tenure would have been a recognition of her performance. But she knew she wanted to leave academia. Says Aciego, “It felt dishonest to put my friends and colleagues through the work of evaluating me.”

Academic and adjacent paths

Many scholars who are denied tenure or leave before going up for it stay in higher education in non-tenure-line positions. Some teach at middle or high schools or at community colleges. They also go to industry, government, and publishing.

And some get tenure at another—usually less prestigious—institution. A complete pivot from physics and education seems rare, or at least harder to identify, based on those interviewed for this article. I did hear of a couple of people who decided to leave the workforce.

The anonymous biophysicist stayed in academia and is coming up for tenure again soon. A particle physicist I spoke with has worked at Fermilab for many years since he was denied tenure at the University of Illinois. “There is still stigma,” he says, explaining his request for anonymity.

David Meltzer attributes having been denied tenure in 2004 by Iowa State University to a combination of the physics department’s having second thoughts about physics-education research, which he had been hired to set up there, and “a personal element.” He fought the denial in both the university and the courts, taking his case all the way to the Iowa supreme court. For a while he worked in Lillian McDermott’s research group at the University of Washington and briefly taught at a middle school. Burnt out from his experiences in academia, he was willing to take a university job only if it came with tenure. After landing an offer at Arizona State, he says, “my world changed. I went from the prospect of collecting unemployment insurance to having a secure job with a salary of \$85 000.”

In 2018, the president of a minority-serving institution turned down the tenure bid of a physical chemist after the college-wide committee voted in his favor. After union-backed litigation, the physical chemist, who wants to remain anonymous, was awarded tenure and back pay. He is now tenured at a different institution.

Geochemist Maureen Feineman felt “demoralized” when she stepped off the tenure track at Penn State in 2012, about a year after returning from maternity leave. “Having a child while on the tenure track can lower chances of success for a variety of reasons,” she says. She stayed on at the university as a research professor. For six years she headed the department’s undergraduate program, and she now runs an electron microprobe lab, teaches, and does research. While on the tenure track, she says, “No matter how hard I worked, it was never enough. I was always behind, rushing to catch up. That never let up. Now I can choose what I want to focus on.” She does not have job security, she notes, but her pay is comparable to that of someone with tenure. “In the long run, I’ve been a much happier human than I would have been in a tenured position.”

After tremendous investments of time and money, says Lampkin, it should be no surprise that people who have been denied tenure—“a population of highly trained and motivated individuals”—find ways to “creatively recover and move our lives forward in new trajectories.”

Even so, a sense of shame and bitterness often persists after tenure denial. But “professors who do and don’t get tenure are equally happy five years later,”¹³ according to Harvard University psychologist Daniel Gilbert, who has conducted several studies on the subject.¹⁴

Departments lose too

Tenure denials can be bad for departments, too. Small departments, in particular, may be short on instructors for a year or more after someone is denied tenure. And the

department—or a subfield—could lose the tenure-track position completely.

And a denial can hurt faculty morale. “Departments do not want a reputation for chewing up assistant professors and spitting them out,” says Columbia’s Helfand. He and others note that the real gatekeeping occurs at the hiring stage: “We only hire assistant professors we expect to tenure. And then we support them with everything—space, resources, and mentoring,” Helfand says.

“After we have gone through an elaborate search process, why should we change our minds about someone?” says Michigan State University’s Nunes. “So my question is, if someone doesn’t get tenure, what did the institution do wrong?” Often, she says, the failing is a lack of mentoring. Academics are not trained as mentors, and many scientists “think of mentoring as a waste of time,” she says. “Academics can be a bunch of prima donnas, not a community that takes care of each other.”

Many university administrators and academics describe the tenure system as robust and usually fair. A department “might feel it has to deny tenure occasionally, otherwise it looks like standards have fallen,” says Carroll, who is now in a named non-tenure-line professorship at Johns Hopkins University. He has also written popular science books and been involved in other forms of science outreach. Still, he adds, “I wish departments were more risk-taking and experimental and less conservative.”

Urry calls the tenure system “terrible,” but says she “can’t think of a better one.” A physicist who was denied tenure and

prefers anonymity says, “Tenure is necessary. Without it, the university system would crumble. Scientists would go to other sectors for higher-paying, less stressful jobs.”

REFERENCES

1. D. J. Helfand, “A radical experiment: Tenure does not equal excellence,” *Chronicle of Higher Education*, 7 April 2021.
2. D. Kaminski, C. Geisler, *Science* **335**, 864 (2012).
3. National Academy of Sciences, National Academy of Engineering, and Institute of Medicine, *Beyond Bias and Barriers: Fulfilling the Potential of Women in Academic Science and Engineering*, National Academies Press (2007).
4. R. R. Callister, *J. Technol. Transf.* **31**, 367 (2006).
5. “Why do faculty leave or stay?: COACHE faculty retention and exit survey highlights top factors,” Collaborative on Academic Careers in Higher Education blog post (28 May 2023).
6. L. J. Rissler et al., *BioScience* **70**, 814 (2020).
7. K. Chávez, K. M. W. Mitchell, *PS: Political Sci. Politics* **53**, 270 (2020).
8. S. Bianchini et al., *Humanit. Soc. Sci. Commun.* **9**, 195 (2022).
9. University of Oregon Social Sciences Feminist Network Research Interest Group, *Humboldt J. Soc. Relat.* **39**, 228 (2017).
10. I. H. Settles et al., *J. High. Educ.* **93**, 31 (2022).
11. I. H. Settles, N. T. Buchanan, K. Dotson, *J. Vocat. Behav.* **113**, 62 (2019).
12. S. Carroll, “How to get tenure at a major research university,” *Preposterous Universe* blog post (30 March 2011).
13. “Daniel Gilbert stumbles onto something big,” interview, *PowellsBooks.Blog* (21 March 2006).
14. See, for example, D. T. Gilbert et al., *J. Pers. Soc. Psychol.* **75**, 617 (1998). 171

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