

# Seeking the Skills for a Successful Career in Academia

To many on the outside, life as a tenured faculty member conjures up images of dreamy afternoons spent theorizing at one's desk, interspersed with occasional trips to the lab to hold up test tubes to the light. Of course, anyone who's been to grad school for more than a week knows there's more to scientific endeavor than that. In fact, a faculty member's requisite skill set is quite extensive. **By Emma Hitt**

**T**enure-track faculty members must not only think well, but they must also write well, speak well, and interact with people well. They should have a keen business sense and be adept in managing budgets, projects, and people. Paradoxically, they must be fiercely independent, yet able to collaborate well with others. They must be confident enough to know when they've found a scientific truth, but humble enough to admit when they are wrong. They should be kind enough to mentor younger scientists, but stingy enough with their time to be able to manage it well. In addition, faculty members must have a driving passion toward their research and be willing to devote a Herculean effort over many years. Despite these stringent requirements, many can and do succeed in academia. The key, it seems, is making a conscientious effort to develop the necessary skills early on. In this article, people who have achieved high levels of success in academia provide specific, practical advice to others who would follow in their path.

## Passion—Fuel That Fans Flames of Success

One resounding theme from successful faculty members is that one has to have passion. This is something that cannot be feigned, learned, or coerced—it either exists or it does not. “There has to be an inherent interest, whether it is derived from a crystalizing experience such as a parent dying of cancer, or from a value system that has developed within a person,” says **Mary Delong**, director, Office of Postdoctoral Education at Emory University, which oversees career development for nearly 500 postdoctoral fellows. In addition to cultivating a passion for one's work, Delong also mentions that during the postdoc years, developing a track record of performance through publishing papers and fully researching opportunities in the field are probably the most important steps. “But passion is what will carry a postdoc through the challenges,” she says.

**Joseph Coyle**, with Harvard Medical School, who has studied schizophrenia and other neurological disorders for more than 40 years, was drawn into his career path early on. “I'd say for most of my life I never saw myself as going to work, I saw myself as going to do something I totally enjoy,” he says. “If it's drudgery, you ought not do it. But if research isn't your passion, then a Ph.D. can afford many different opportunities, such as patent law and science writing. You don't have to feel trapped.”

## Standing upon the Shoulders of Giants

A large proportion of Ph.D.s in the sciences go on to seek a postdoc position—about 77 percent of Ph.D.s in the biological sciences and 61 percent in the physical sciences, according to a 2006 National Science Foundation report. One of the first steps in graduate school and beyond is to seek out mentors who will provide guidance but who will also foster independence, says **Nancy Schwartz**, who conducts research on proteoglycan synthesis at the University of Chicago. Schwartz states that, for better or worse, she was forced into thinking independently early on during her career because of the intermittent absences of her thesis and postdoctoral advisers. She doesn't recommend that as a situation to seek out, “but really, it is each individual's responsibility to garner what they think they need from many other colleagues and mentors, throughout their career.”

**Story Landis**, director of the US National Institute of Neurological Disorders and Stroke (NINDS), who was in academic research for many years, also recommends **continued »**



Mary Delong

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Faculty Positions

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—William Mobley



being assertive about seeking out opportunities for oneself. “Early on in my career, senior people often gave me the opportunity to write reviews or to speak at meetings, and this really helped develop my skills.”

However, both Schwartz and Landis point out that one has to be careful about taking on too many administrative duties that would interfere with lab and teaching duties—this, they say, is especially important for women and minorities to remember, since they are frequently unrepresented on panels and often asked to participate in this way.

**William Mobley** at Stanford University suggests avoiding administrative responsibilities when possible, “except those you think would be fun to do and that would directly benefit your career and your science, such as participating in grant reviews—there will be more time to focus on these types of responsibilities later on,” he says.

**No Man (or Woman) Is an Island**

Another key component of a successful academic career is the ability to establish collaborations with other researchers and learning to depend on the help of others. This, of course, can be especially challenging for young scientists who, in the crucible that is graduate school, slowly come to achieve academic independence. Mobley, however, advises postdocs and junior faculty to seek out collaborations. “Science is too dangerous to do alone—too daunting, too lonely, and too huge,” he says.

“As you transition from being a postdoc to having your own lab, you start to rely on other people and their efforts more and more,” notes **Richard Bucala**, a researcher in rheumatology at Yale. “One should never be afraid about hiring or collaborating with somebody who is smarter. I think that’s the only way that one can really advance and grow.”

**Tenure-Track**

According to the Howard Hughes Medical Institute, a tenure-track position is one that leads to a permanent professorial appointment and potentially full salary support if grant funding runs out. A faculty member can be fired only for limited reasons, such as gross misconduct. In general, a tenure-track faculty member will hold a position for about five years before a formal decision is made on whether tenure will be granted.

In 2003, among science and engineering doctoral degree holders who received their degrees within the past four to six years, approximately 20 percent were in tenure-track or tenured positions at four-year institutions of higher education, according to a National Science Foundation report. The percentage rates for individuals in various degree fields are as follows: Engineering 16.3; Life Sciences 18.0; Physical Sciences 16.7; Social Sciences 30.8.

**Dennis Liotta**, whose lab at Emory identified the HIV drug emtricitabine, advises postdocs and junior faculty to find some colleagues that they respect, and make it their business to develop a genuine and collegial relationship with them. “These relationships should also extend out of the university and into other labs and institutions to provide a fresh perspective,” he says.

**Winning at the Lab Business**

An important transition period is moving from being a postdoc to starting one’s own lab, which presents a set of novel challenges. Mobley suggests that people signing up for an assistant professorship seek a position where the salary and necessary startup equipment costs are covered for at least a full three years. “If they can’t offer you that, then they don’t want you enough, and that’s not the place to go,” he notes.

Regarding salary, according to a 2006-07 survey by the American Association of University Professors, salaries for full-time faculty averaged \$73,207. By rank, the average was \$98,974 for professors, \$69,911 for associate professors, \$58,662 for assistant professors, \$42,609 for instructors, and \$48,289 for lecturers, although these figures are not specific for the sciences.

Managing a lab is really managing a small business and these are skills that, for the most part, are not taught in graduate school or during a postdoctoral position, Schwartz says. “You’re managing people and budgets, and you’re seeking funding, and then you’re responsible for how those funds are spent.” She recommends taking at least a few days to learn about budgeting, and mapping out a projected budget of what everything is going to cost. “Some of our junior faculty are totally astounded when they see how fast grant or startup money goes because they have not really considered the costs,” she says.

When it comes to managing people, lab tech and postdoc underlings are going to look to the leader of the lab, i.e., the new junior faculty member, to set the standard for that lab. “Whatever time in the lab that you set for yourself, that will tend to be the standard,” says Liotta. “So, if you want people to work evenings and weekends, then you will have to show up then also. Good students will often show up regardless, but that extra motivation of having their boss there is helpful.”

It’s also important to seek out the kind of staff, such as students and postdocs, that will meet expectations, Schwartz advises. “You have to be explicit about your expectations; if you plan on working 15 hours a day in the beginning, then you want a lab staff that will be willing to match that lifestyle.” You also have to learn to let go and let people make mistakes, “otherwise, you’re not going to allow people to become independent thinkers and doers. They’re going to develop more of a ‘technician’ mentality.”

**Creative Funding Strategies**

A primary stressor that affects even seasoned faculty is funding. Coyle points out that when NIH funding is more difficult to obtain, as it is now, the most creative science, or science from younger faculty, may sometimes be passed over in favor of the less risky, or the tried and true.

However, Landis notes that the NIH has committed to fund as many first time R01 applicants in 2007 and again in 2008 as the average of the past five years. “NINDS funded R01s to the 25th percentile while experienced investigators were guaranteed funding **continued »**

Faculty Positions

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if they got a 9th percentile, and overall we funded 15 percent of research project grants,” she noted.

Coyle suggests seeking out alternate funding sources such as various foundations or nonprofits. “There is a lot more foundation money out there than there was when I started out,” he says. “I think even basic science, even someone who’s going to be doing basic biological research should think about the potential clinical applications and should look for opportunities to get support from relevant foundations that are interested in the clinical aspects of the research.”

Bucala also advises young faculty to think outside the box when it comes to defining their research. “One has to be opportunistic. If one is really, for instance, captivated by the biochemistry of protein kinases, you don’t necessarily have to work on kinases in oncogenesis. You can work on them as they relate to learning and memory or host defense mechanisms. You can’t let yourself be constrained necessarily by a particular application,” he says.

However, Liotta advises staying away from a “brute force approach” to getting funded. “The most important aspect for getting funding is putting together a well-thought-out proposal,” he says. Liotta also suggests waiting to get results that are sufficiently compelling and provocative, and are likely to get the attention of

the study section. “If they see a mediocre proposal from you several times, then they’re going to associate you with mediocre science.”

**Teaching the Teacher**

Teaching represents yet another obligation of a junior faculty member, and that teaching has to be balanced with research, lab management, and administrative duties. According to Mobley, it’s important to understand from others what the best teaching styles are. “Try to convey your information as clearly and as simply as possible but engage your students—get students to help themselves learn, and give them opportunities to speak to you.”

“Teaching and research are intimately intertwined,” says Liotta. “If you’re a good researcher and you don’t know how to communicate those results, you’re not going to be very effective.” Liotta recommends using a camcorder to tape a few teaching sessions to identify and try to eliminate any idiosyncrasies. “Many people have habits that they don’t realize and they’re probably relatively easy to correct.” He also points out that good notes and preparation can go a long way in producing a well-organized lecture in the beginning.

**Playing Politics**

The word “politics” carries many meanings, but in science, if politics means forming collaborations and generally getting along with people, then it plays a valuable role in advancing a career. But such politics cannot substitute for good science. “I certainly know some people who just spend their whole day on the telephone talking to everybody and finding out what everybody else is doing,” Schwartz says. “It’s far better to focus on doing, not just talking, science.”

“In academic circles, good science, not politics, always wins,” says Mobley. “Playing politics is potentially damaging. Focus on your scientific teaching, avoid politics in any way—only people who can’t do science play that game,” he adds.

Coyle agrees. “I’ve not been impressed that playing politics is the way to get ahead. I am impressed that if you really focus on your science, especially in the beginning of your career, and be very defensive about preserving your time to do your science, then that’s probably the most important way of getting ahead academically,” he says.

**Love of Learning**

While there may seem to be an overwhelming array of skills to master for tenure-track doctors of philosophy, “philosophy” does in fact mean “love of wisdom.” And if there’s one single defining characteristic among academics, it may be just that. Schwartz, therefore, advises approaching the mastery of these tasks as a lifelong learner, which makes it all more palatable.

“If you think about the job of a university faculty member, we’re in a unique position,” says Liotta. “We can do whatever kind of research we want to do and have the opportunity to work with bright young people year after year. We can go out and talk about our work with colleagues at meetings; we tend to have fairly flexible schedules so we can do a lot of interesting things, and you know—that’s a fantastic job.”

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