

Part II

Striving and Surviving

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7 Scholarship Expectations and Practices Across the Academic Landscape

Kelly M. Banna , Amy L. Odum , and Erin B. Rasmussen 

Scholarship Expectations and Practices Across the Academic Landscape

Within the American academy, faculty in tenure-track positions are universally—or nearly universally—assessed across three domains of professional behavior: teaching, scholarship, and service. Although each university or university system defines these categories in its own way, the category regarding scholarship is perhaps the most variable. Most definitions, however, are variations on themes articulated by Boyer (1990) and include activities that discover, integrate, and/or apply knowledge within the academic discipline or to the areas of teaching and learning. Universities—and in many cases, the academic departments contained therein—may also set expectations for the quantity of scholarly activity, the scope at which it is disseminated, the weight allocated to refereed (v. non-refereed) products, and the reputation of the outlet, just to name a few.

Specific scholarly expectations for tenure and promotion—the “golden rings” of the academy—can vary widely both as a function of academic discipline and the nature of the institution. In this chapter, we provide an overview of our academic training, scholarship expectations in our departments, strategies for including students in and obtaining funding for our research, and advice for establishing and maintaining productive lines of research. We are all behavior analysts housed in psychology departments but hold appointments at universities that carry different Carnegie classifications (Carnegie Foundation for the Advancement of Teaching, 2022).

Millersville University of Pennsylvania (MU): Master’s Granting, Larger Programs (M1)—Millersville University is one of 14 comprehensive, four-year,¹ public universities in the Pennsylvania State System of Higher Education (PASSHE) that are accredited by the Middle States Commission on Higher Education. It is located in Millersville Borough, which has a population of just over 8,000 people, though the surrounding Lancaster area is much larger (~85,000). As of Fall 2021, MU’s enrollment stood at 7,213 students, approximately 85% of which were undergraduates.² Pennsylvania residents make up 92% of the undergraduate body. PASSHE has been charged by the state legislature to provide exceptional education to Pennsylvania residents at the lowest possible cost to our students.

Kelly M. Banna, Ph.D, Associate Professor: I earned my B.S. in psychology from James Madison University in 1999. I became interested in the experimental analysis of behavior (EAB) while working on my undergraduate thesis with Sherry Serdikoff. My project evaluated the discriminative stimulus effects of gamma hydroxybutyric acid using rats as subjects. By the time I completed that project, I knew two things: first, that I wanted to pursue a career in academia and second, that I wanted to study behavioral pharmacology. While my primary area of interest was drug self-administration, Sherry convinced me to apply to

graduate programs in the experimental analysis of behavior where I could get a solid foundation in the science of behavior; afterwards, I could specialize in self-administration.

I decided to take Sherry's advice. Following graduation, I headed to Auburn University, where I completed my M.S. and Ph.D. in experimental psychology under the mentorship of Chris Newland. Most of my graduate research focused on behavioral pharmacology and mathematical modeling of choice behavior maintained under concurrent schedules of reinforcement, the latter of which I studied in both aquatic (bluegill sunfish) and rodent (rat) species. I also completed formal minors in statistics at both the undergraduate and graduate level (pro tip: if you want job security, find something no one else likes doing and get really, really good at it).

Following graduate school, I accepted a postdoctoral position in the Department of Neuroscience at the Medical University of South Carolina (MUSC) working in the lab of Ronald See. Here, I gained experience studying animal models of substance abuse and relapse using the drug self-administration and reinstatement paradigm. In this model, rats are trained to respond for (i.e., self-administer) small amounts of a drug. Responding is subsequently extinguished, and several challenges are presented to the subjects to determine whether those challenges occasion drug seeking. The challenges most often employed—exposure to stressors; a small, passively-administered amount of the drug; and drug-paired cues—have been selected because they are associated with relapse to drug seeking in humans (see Venning et al. [2016] and Shaham et al. [2003] for reviews). During my time at MUSC, I also taught Introductory Psychology as an adjunct at the College of Charleston.

For a variety of reasons, I decided to take a hiatus from academia at the end of my postdoctoral scholarship. I ended up in Wichita, KS for four years because my husband was stationed at McConnell Air Force Base. After two years of working as a veterinary assistant at a friend's clinic, I had the opportunity to teach as a visiting assistant professor at Wichita State University. Two years later, I accepted a tenure-track position at Millersville University of Pennsylvania, where I continue to work as an associate professor in the Psychology Department. My primary research interests are behavioral economics and animal models of substance abuse, which often overlap. All of my formal training and most of my current scholarship involves nonhuman animals, but I occasionally dabble in human research.

My professional service to the field includes holding several elected positions in the Southeastern Association for Behavior Analysis (program chair, president-elect, president, past president, and board of directors [twice]). I have also served on the Editorial Board for *Perspectives on Behavior Science* and as an ad hoc reviewer for a number of other publications. I am very involved in service activities at MU, including a current position as the chapter president for our faculty union (the Association of Pennsylvania State College and University Faculties [APSCUF]). I am an active member of the Institutional Animal Care and Use Committee (IACUC) and have chaired MU's Mentored Undergraduate Summer Experience committee, which awards summer grants to undergraduates for research and creative activities.

Department Overview: Our Psychology Department has approximately 14 full-time, tenure-track faculty members at any given time, and contains four programs: a Bachelor of Arts program in Psychology and graduate programs in Clinical Psychology (M.S.), School Psychology (M.S./Ed.S), and School Counseling (M.Ed). The bachelor's program serves just under 400 majors,³ approximately 20% of whom are transfer students. The psychology major is heavy in coursework for research, statistics, and laboratory work, including a capstone course with a research option. Students also select 12 and 6 credit hours from a menu of core and general electives, respectively.

Two-thirds of the required credits in the Psychology core are in research-focused, laboratory courses, which illustrates the premium our department places on psychology as a

research enterprise. Further, our honors program spans three semesters, during which time undergraduates propose, carry out, and defend senior theses, working under the mentorship of faculty advisors. I teach both methods-based courses and the Advanced Laboratory in Learning and Behavior Analysis on a regular basis, and I typically have one or two honors students working in my lab at any given time. I also teach our introductory courses in Learning and Behavior Analysis and Physiological Psychology one to two times per academic year.

Expectations for Scholarship: The guidelines for faculty evaluation and decisions regarding tenure and promotion (T&P) are provided in the statewide collective bargaining agreement (CBA) and associated policies, which are negotiated by PASSHE and State APSCUF. Each chapter of the faculty union (one per campus) also negotiates local policies related to T&P with local administration.

Like most institutions of higher education, the CBA specifies teaching, scholarship, and service as the bases for faculty evaluation. Because PASSHE universities are teaching-centered, the expectations for T&P are weighted in favor of teaching effectiveness. In fact, statewide policy requires that each university explicitly weight teaching as the most impactful of the three when assessing applications for promotion. Our local policy, for example, requires that each promotion application be scored using one of three weighting algorithms:⁴ (a) .60-.20-.20, (b) .50-.30-.20, and (c) .50-.20-.30. These numbers represent the weighting factors for teaching, scholarship, and service, respectively. These weighting algorithms indicate that scholarly activity only accounts for 20–30% of faculty members' overall promotion score (v. 50–60% for demonstrating effective teaching). This is reasonable considering that a full teaching load is 24 c.h. per academic year (i.e., a 4:4 load).

While categories for evaluation among PASSHE universities mirror those at other institutions of higher education, we are somewhat unique in that the evaluation and granting of tenure is independent from that of promotion to associate professor. Faculty are required to apply for tenure in their fifth year of employment. Applications are reviewed by the University Promotion and Tenure Committee (UPTC), which then recommends to the provost whether or not to tenure each applicant; it is an “up or down” decision. In contrast, the decision to go up for associate is entirely up to individual faculty members. They may apply for associate along with tenure or wait to do so at a later date. In theory, faculty in PASSHE institutions could retire at the rank of assistant professor.

In general, the expectations for scholarship in my department are broad; the CBA provides a list of activities that count as scholarship across campuses and disciplines, and our local agreements on T&P specify that more weight is given to those activities that have been subjected to external review processes (e.g., peer-reviewed articles, juried exhibitions) than to those that have not. There are currently no minimal requirements for any type of scholarly product specified in the CBA, related statewide policies, or local agreements. Generally speaking, faculty must demonstrate some minimal amount of scholarship to earn tenure (e.g., one to two publications, two to three conference presentations). Expectations for promotion to associate are a bit higher, but not specified; the same goes for promotion to full professor. In many ways, MU takes the Justice Potter Stewart (*Jacobellis v. Ohio*, 1964) approach to identifying quality scholarship: we'll know it when we see it.

Student Involvement: Completing my graduate work and postdoctoral fellowship at large, research-intensive institutions confirmed what I had always known: that I did not want a career in that environment. These experiences were critical in preparing me to establish my own lab at Millersville, so I wouldn't trade them for anything—that sort of work just wasn't (and still isn't) what I want to spend my time doing. While I like research, I *love* teaching, and I especially love recruiting undergraduate students and training them in the behavior analytic tradition. Therefore, when I applied for tenure-track positions, I only applied to small-to-medium liberal arts universities emphasizing undergraduate education

that would allow me to build a meaningful research program dedicated to training undergrads. Luckily, I found an opportunity to do just that at MU.

Given the teaching-intensive nature of my position, I have had to creatively design my research program such that it overlaps significantly with my teaching responsibilities. First and foremost, I am an active mentor in the Psychology Honors Program. I typically mentor one to two thesis students every year and employ two to three additional undergraduate laboratory assistants who are paid with MU student wage funds. Students complete projects that are (in theory) publishable and align with my research goals. Many of these projects are variations on those that I completed as a graduate student or a postdoc, or replicate studies involving animal models of substance abuse and/or behavioral economics. Typical animal projects include two experimental sessions a day, six days a week, *all of which are run by undergraduate students*. Students are also paid to do husbandry work (e.g., weigh, feed, clean cages) and lab cleaning on one day every weekend.

I employ a junior-colleague model of mentorship common in graduate programs (see Amy's more extensive description shortly). I work closely with students in the beginning of a project and gradually give them more independence as the project evolves. New students and lab assistants are trained by more experienced students, and eventually graduate to working independently. We have regular lab meetings, during which time we address any experimental/animal-care issues that arise and discuss journal articles (when there is time). This is also the forum in which my thesis students practice their proposals and defenses. Essentially, my lab is modeled after the experience I had as a graduate student.

Unfortunately, supervising honors theses does not count towards my course load. In order to use my time more efficiently, I've begun using honors projects as the basis for classroom projects in my advanced laboratory course. Students in this class gain experience handling rats, shaping behavior, and carrying out husbandry duties. Course readings are drawn from the primary literature related to the project, and we spend the semester reviewing readings and building a research paper around the lab project. By doing this, I am combining prep work for honors theses with that for one of my (labor-intensive) courses, which also allows me to prepare and write my own manuscripts.

I've used a similar strategy in my statistics class—class projects replicate (or replicate and extend) projects described in the primary literature that align with my research interests. The results can be written up for publication and/or presented at conferences, either by students or by me. Such a strategy also provides opportunities for publishing and/or presenting in journals or at conferences related to either the research topic or to teaching and learning.

Sources of Funding: At many institutions, faculty are expected to negotiate “start-up packages” before accepting academic positions. This involves securing the resources (e.g., financial, physical space) necessary for a new faculty member to begin and complete enough research to apply for additional, external funding over the following years. The size of these packages can range from a few thousand to over a million dollars depending on discipline, scholarship expectations, and the availability of laboratory/office space, and can often be *the* selling point or *the* deal breaker of a job offer.

Luckily for me, I didn't have to deal with any of that for the following reasons. First, I was hired, in part, to teach a course that includes a rat-lab component. This meant that the laboratory space I would need to teach *and* conduct my own research was already available. Second, the academic building that houses the Psychology department was undergoing significant renovations at the time I was hired. Because of the timing, I was able to work with the university architect to design the laboratory space according to my needs and industry standards before I even started my first day of work. Finally, one of the expectations was that I would modernize both the methodological and technological aspects associated with maintaining an operational rat lab and teaching a related course. When I arrived, all the

equipment was antiquated (think analog operant chambers and hanging wire cages), which meant that everything needed to be replaced. Because the laboratory space was used as a teaching facility (i.e., was tied to our curriculum), the entire cost of upgrading the housing and experimental equipment was covered by the college in which my department is housed. This amounted to over \$50,000 of equipment, which I was also expected to use for my own research and research involving students—jackpot!

Start-up costs are only the beginning of the financial resources required to maintain an animal laboratory. Additional and recurring costs include purchasing animals, *per diems* (i.e., husbandry costs associated with animal care, such as food, bedding, and animal facility staff), maintenance costs, and the cost of any additional equipment needed for new research projects. Because all of my research involves students, and (to date) all of their projects have been associated with required or elective courses, I have been able to maintain my lab using nothing more than funding from my department/college and internal grants to me and (mostly) my students. This has the added benefit of providing students with experience writing grant applications, which is an excellent addition to their CVs, especially if they intend to apply to graduate school. The lab also offers opportunities for employing students on campus in a way that gives them research experience and skills they would find useful if they wanted a career in research. Undergraduate-focused universities are often happy to support these activities because they provide the foundation for student research (a high-impact practice), give students unique experiences that increase their competitiveness in graduate school applications, and contribute to the educational mission of the school.

I am not unique in my department. Among those of us who regularly mentor student research, none of us currently has significant sources of external funding (e.g., more than \$5,000). In fact, aside from the animal research I conduct, most or all of the research being done by faculty in my department can be done at little to no cost. Student funding is available through internal grants, some of which are paid through a significant endowment to the department made by my predecessor. This money is specifically set aside to support student research and travel, and is available to faculty who engage those students.

Words of Wisdom: The following suggestions are anecdotal and are based on my experience at an undergraduate-focused, public university with high teaching demands. I suspect that these strategies would prove fruitful at most similarly situated institutions and at smaller private colleges where undergraduate research is considered a highly valued, high-impact practice.

Kill two (or more!) birds with one stone. Because teaching loads tend to be heavier at baccalaureate and master's institutions, look for opportunities in which your scholarship and teaching can overlap. Applying a graduate school model to student theses and/or independent projects provides one such opportunity. Rather than separating your research from student collaborations, align student projects with your scholarly interests and goals. Projects should be selected based on intellectual merit and the potential to produce publications or presentations at state, regional, or national conferences. This approach requires that you identify and recruit academically strong students who demonstrate high levels of responsibility and the ability to work independently. Depending on how long data collection lasts, it may also require you to identify students who can commit to a multi-semester project (more on this shortly).

A second mechanism for combining teaching and scholarly activities is to bring your research interests into the classroom. While many of us do research on complex topics that, as a whole, are more advanced than what is typically covered in undergraduate courses, they can often be broken down into smaller, simpler writing and laboratory assignments. By doing this, much of the preparation you do for your classes will provide at least a foundation for manuscripts and conference presentations.

Replicate (and extend). Replication is the gold standard for demonstrating the reliability of scientific findings; it is the key to discovering “truths” about the natural world. Unfortunately, it is undervalued in both grant funding and publication, which makes it a low-value activity for faculty employed at research-intensive universities. However, undergraduate research projects provide an excellent opportunity for such studies for the following reasons. First, undergraduates, by their very nature, are not prepared to conduct extensive literature searches to identify “holes” in the literature or to design studies on how to fill them. Second, their time with us is limited. While graduate school can go on for a seemingly indefinite period of time, most undergraduates expect to complete their degree in four years. Further, many do not take research-based courses or begin doing mentored research until their junior or senior year. Replication studies provide the opportunity to conduct research using well-defined methods, eliminating the time it would take to design a novel study. Further, replicating a published study specifies and limits the scope of the literature review students need to do; it is a much more tractable endeavor. Given that the scientific community—including the field of behavior analysis—has begun to acknowledge the value and necessity of replication in advancing science, opportunities for publishing such studies are likely to increase in the coming years (see, for example, the special issue of *Perspectives on Behavior Science* addressing replication and reproducibility).

Because the scholarship and funding expectations for faculty at teaching-intensive universities are often less stringent than those at larger institutions, there is less pressure to chase after shiny new projects or to obtain large grants. This means we are free to do things like replicate existing studies and present the results at conferences or in publications. We also get bonus points for including students. Also, once you’ve successfully designed and implemented a replication for use in a class or as a student research project, it is relatively easy to (re-)replicate and extend. This is particularly efficient for those of us who teach multiple sections of lab-based courses on an annual basis.

Identify good students and recruit/train them early. In order to maintain a successful research program at an undergraduate institution, you will need to identify and recruit strong students early in their career (e.g., late sophomore/early junior year). My strategy has been to reach out to students who do well in my (or colleagues’) classes, especially the research methods and statistics sequence and the introductory behavior analysis course. I look for students who are actively engaged in class activities and discussion, demonstrate advanced critical-thinking skills, attend class regularly and on time, work well with their classmates, interact well with me, submit all of their assignments on time, and who (ideally) are decent writers. I know that sounds like a lot, but in ten years at a small, public university in relatively rural Pennsylvania that has an admissions rate of over 90%, I have never had trouble identifying one to three students a year who meet these criteria and who want to work in a rat lab. Given the heavy teaching load I carry and the fact that I spend a substantial amount of time engaged in university service, I cannot commit enough time or resources to training students who are not already well prepared for working in a live animal lab. Inviting underprepared students into my lab would set us both up for failure, so I don’t do that.

It is also my belief that this relationship should be symbiotic: if these talented students are willing to dedicate a significant amount of time and effort to my lab, I owe it to them to be an attentive and active mentor. In their time with me, I try to teach them about the ins and outs of running a lab (tl;dr—85% of it is trouble-shooting, 10% is sciencing, 5% is screaming into the void); the ethical responsibilities associated with caring for live animals; and designing, executing, analyzing, and presenting research. Successfully navigating this process is rewarded with detailed and glowing letters of recommendation. In short, my goal is to create a research environment in which students will flourish, provide them with the experiences they need to successfully apply to graduate school, and make it so that—when they get there—they are *underwhelmed* by the workload.

Idaho State University (ISU): Doctoral-Granting, High Research Activity (R2)—Idaho State University is a university located in rural mountainous Pocatello, ID—a city of over 55,000 residents. ISU has over 240 undergraduate degree programs and 140 graduate programs, 20 of which are doctoral-level. ISU also has the health mission for the state of Idaho and leads the state in training for health professions. We have satellite campuses in three other cities—in Idaho Falls, Meridian, and Twin Falls—as well as one in Anchorage, AK. ISU typically enrolls over 12,000 undergraduate students and over 2,000 graduate students. Most undergraduate students are from Idaho and 40% are first-generation college students. About 57% of the student body identifies as female. Because our undergraduates are from Idaho, they generally reflect the demographics of the area—73% are White and at least half identify as members of the Church of Jesus Christ of Latter-Day Saints. We have seen a rise in Hispanic students attending ISU in the last decade, which currently make up about 12% of our student body. About 52% of our undergraduates receive some form of financial aid.

Erin B. Rasmussen, Ph.D, Professor: I completed my B.S. in Psychology at Utah State University; my undergraduate advisor, Carl Cheney, heavily influenced my direction into the experimental analysis of behavior. From there, I earned my Ph.D. from Auburn University in the Experimental Analysis of Behavior (emphasis in Behavioral Pharmacology and Toxicology) under the supervision of Chris Newland. Much of my training is in animal research, though I also learned a great deal from Tom Critchfield on how to do human operant research. I also learned the philosophy of behaviorism and tools of science from Peter Harzem, Jim Johnston, Bill Buskist, Mona El-Sheikh, Bill Hopkins, Rick Fleming, and Dudley McGlynn. After graduating from Auburn, I accepted an assistant professorship at the Department of Psychology at the College of Charleston, which has three to four behavior analytic core faculty, for three years. Then in 2004, I accepted an assistant professor position in ISU's Department of Psychology, which is where I have resided since. I am now a full professor and am also the chair of ISU's Institutional Animal Care and Use Committee (IACUC).

During my graduate and postgraduate training, I developed a wealth of research skills in both animal and human research, and I benefitted greatly from training in general processes that underlie the behavior of many species. Because of this, my research program has involved the study of behavioral processes that can be examined from the highly controlled and reductionist rigor of the animal lab to real-world settings that have broad social significance. My research team typically includes four to five doctoral students from both of ISU's PhD programs (Experimental Psychology and Clinical Psychology) and some talented undergraduates; all of them contribute substantially and meaningfully to my research program.

My current research interests tie together health, behavioral economics, and behavioral pharmacology. I have two laboratories (human and animal) that investigate choice and decision-making involved in obesity and health. My human work focuses on behavioral economic and socioeconomic factors related to food-based delay discounting. My animal work investigates the effects of diet on neurotransmitter systems that play a role in the valuation of food reinforcement (including delay discounting) in diet-induced and genetic models of obesity. More recently, we have been examining the establishment of food cues as triggers for binge eating and delay discounting.

I have over 60 peer-reviewed publications and was awarded a three-year research grant from the National Institutes of Health (NIH) to investigate the relations among food insecurity, obesity, and food impulsivity. I have served as Associate Editor for *Perspective on Behavior Science* (2015–2019) and have completed two terms on the editorial board of the *Journal of the Experimental Analysis of Behavior*. I also served as the president of the Association for Behavior Analysis International for a three-year term (2019–2022) and recently received authorship of the seventh edition of the textbook *Behavior Analysis and Learning: A Biobehavioral*

Approach with Drs. Casey Clay, Carl Cheney, and the late David Pierce. I teach undergraduate and graduate courses on Learning & Behavior, Food & Behavior, Senior Seminar, and Psychopharmacology.

Department Overview: The number of faculty in the Department of Psychology is smaller than most universities with doctoral programs, with 13 tenure-track faculty members, one visiting line, one full-time lecturer, and a varying number of adjuncts. We have over 400 students in our undergraduate major.

We have two doctoral programs—an APA-accredited Clinical Psychology program that is over 30 years old and an Experimental Psychology program that is over ten years old. Our faculty are collaborative across programs—research and mentoring students across the two graduate programs is standard practice. We have 40–50 graduate students in the department; most are from out of state. Most come here to work with particular faculty members. Our faculty are productive publication-wise; many have acquired federal funding, and many are well known in their fields, which also adds to the exciting climate of the department.

The standard teaching load at ISU is 3:3, which means everyone must teach three courses in the fall and three in the spring. This teaching load is set by the Idaho State Board of Education. Each faculty member is accountable for 15 units of work output and nine of those must be teaching. Therefore 60% of the load is required to be teaching. However, each department can determine what qualifies as teaching. For example, in our department, the clinical faculty count practica (training clinical doctoral students in therapy) as a class; other universities often include this requirement on top of regular teaching loads. Our department also gives faculty one course credit per year if they are supervising at least three graduate students in terms of theses and dissertations. Therefore, most faculty in our department have a 2:3 or 3:2 teaching load. Course releases are also offered for administrative roles in the department, such as for chair or graduate-program directors or for university administrative roles, such as chairing the IACUC. You can also “buy out” of courses with research grants.

Based on this teaching load, the research requirements for each department at ISU vary a great deal. In our department, since the number of classes we teach includes graduate mentoring, we meet the state law’s requirements for nine units of teaching. But if you consider the distribution of work to the three areas (teaching, research, and service) by counting courses only as teaching, the distribution looks more like 40–50% teaching, 45–55% research, 5–15% service. Because we have two doctoral programs, it is easier to get studies published because the work of conducting the studies is done primarily by graduate students. Faculty conduct research mainly by supervising the design, analysis, and dissemination of the studies, as well as applying for grant money, but the data collection and foundational work is done by the graduate students.

Expectations for Scholarship: Our departmental guidelines for T&P state that a faculty member must have published at least three to four peer-reviewed publications during the five-year review period (with data collected from ISU) to earn a satisfactory rating for T&P to associate professor; more publications are required for a superior rating. At least six to seven peer-reviewed publications (high-impact are more heavily weighted) during the review period are required for a satisfactory rating for promotion to full professor; again, more are required for a superior rating. You must have at least one superior rating in the areas of research or teaching for promotion to associate and two superiors in the three areas of teaching, research, and service for promotion to full professor.

The mean productivity in the department, though, is much greater than these minimal requirements. Once their labs are established, faculty members publish an average of two to three peer-reviewed papers per year, which results in ten or more papers on average for promotion to associate professor and 15 or more for promotion to full professor. The contingencies for publishing seem to be less about department requirements and more about

the social or personal contingencies. Many of us enjoy the process of publishing papers and helping our graduate students reach the next level (e.g., postdoctoral fellowship, academic position). This greatly maximizes productivity because publishing research is controlled by appetitive, as opposed to aversive, contingencies. In other words, a published paper is a positive reinforcer, as opposed to a negative reinforcer. For me, I have been a full professor for ten years now, and I am hitting my peak level of research productivity. I am not required by my university to publish much at this point; my employment is safe. But producing research under these conditions is enjoyable and an act of intellectual stimulation. It is an ideal arrangement for me.

Everyone in my department is expected to submit grants for tenure and promotion to the rank of associate and full professor. Internal grants are minimal requirements—everyone needs them to fund their research and they are relatively easy to get. As such, they don't count for much in terms of progress toward T&P. Submitting external grants to federal agencies like the NIH and the National Science Foundation, which require a great deal of preparation and are highly competitive, is weighted much more heavily. Everyone is expected to *submit* grants to appropriate federal agencies for T&P, but because of the highly competitive nature of federal funding, the grant's *funding* is not required. If the grant is funded or if a high score is achieved, however, the chances of T&P are very high. This is also true for promotion from associate to full professor. About half of our faculty has received external funding from federal agencies—some were funded pre-T&P, some post-T&P, and some were funded after reaching the rank of full professor. But the reality is that most who receive federal funding do so later in their career. For example, the average age of a scientist getting their first grant (R01) funded by the NIH in 1995 was 40 years old. Since then, that age has increased to 44 years old. There are no gender-related differences in age of first grant, incidentally (Lauer, 2021), though women make up less than 30% of grant awardees at NIH (Lauer & Roychowdhury, 2021). Given that most faculty begin their careers (i.e., obtain an assistant professorship) in their late 20s or early to mid-30s, one can see that these grants are not really intended to help launch careers; they are awarded after a principal investigator (PI) has demonstrated an ability to establish a program of research (this is true even of New Investigator initiatives).

Student Involvement: At ISU, my graduate students conduct the empirical studies that my research team generates, and I offer developmentally appropriate levels of supervision and support from the first step of conceptualizing and designing the study to the last steps of dissemination, such as publishing the study or presenting it at a conference. My students submit the protocols for research ethics review (Institutional Review Board if a human study or IACUC if an animal study), help design the studies, collect the data, and conduct the analyses. I help them hone their skills of writing, presenting, and critical thinking. I also help them prepare for their thesis and dissertation proposals and defenses. With more experience, they become more self-sufficient with these skills and earn the ability to design their own studies more independently. We use the vertical team approach (see Rasmussen et al.'s Chapter 5 on mentoring in this volume), in which each student, based on their experience, serves as a mentee and mentor to someone more junior, in terms of research. Undergraduates on the team often serve as research assistants to my graduate students' studies. Once in a while I will have an especially gifted undergraduate who I will mentor in designing a study. I have had several undergraduates publish their honors thesis, for example.

My graduate students also get opportunities to publish non-empirical papers, too, such as reviews or book chapters. These projects are usually led by me, and their duties are more circumscribed (e.g., a specific section of a paper is assigned to a student). All of my graduate students are expected to submit research grants (usually internal grants or smaller-value external grants) to help fund their studies and to get experience with grant writing. They

are also expected to present research (e.g., posters, symposia) at professional conferences annually, consistent with program and laboratory requirements. Advanced undergraduates also get these opportunities, though usually as posters.

Sources of Funding: For my first three years, my start-up package funded the building of my operant research (rat) laboratory and seed money for the first projects. I also negotiated an office space for a potential human lab, should the need arise to do human research. After those three years were up, I took advantage of internal grants, the Idaho IDeA Network of Biomedical Research Excellence program, and a university-wide National Science Foundation grant that offered seed money for research to female PIs. I also applied for NIH grants, though none of my applications were funded in the early years. Much of my time was spent looking for money to fund research. It was enough, though, to earn T&P to the ranks of associate and full professor. I also ended up designing a human operant lab, which was a good move. It allowed my research team to conduct studies in a shorter time with less money than was required for animal research (and a side note: my human research gets cited much more frequently than my animal research. Serendipity.).

Shortly after reaching full professor, I finally landed the NIH grant, and it was fantastic not to have to worry about funding for a short time. True to the data, I was 44 when I received the news from the NIH. Now, I am at a point in my career where I am not required to submit grants, but to continue my research program, money is required. I also feel that because ISU invested in me and my research early on, I need to continue the return on their investment (ROI—a buzzword we hear a lot in universities these days). So, my plan is to continue submitting grants to fund more extensive projects.

Words of Wisdom: The following suggestions are intended to help young (and not-so-young) faculty navigate the world of grant applications and publication.

Publish in a variety of journals. As behavior analysts, it is both an honor and duty to publish in and support our journals. However, there are some limits to this. If your department or institution values peer-reviewed research in high-impact journals, they may undervalue research published in behavior analytic journals—even the flagship journals of the field—simply because the scope of impact (i.e., impact factors) is lower. At the time of this writing, we are seeing a rise in the impact factors of some of our flagship journals (e.g., *Journal of the Experimental Analysis of Behavior*, *Journal of Applied Behavior Analysis*, and *Perspectives on Behavior Science*, formerly *The Behavior Analyst*) due to efforts to broaden the range of authors, content, and citations outside of the field; however, the impact factors are still on the lower end (impact factor range = 2.11 to 2.83) when comparing them to multidisciplinary journals in psychology and other fields. Nonetheless, depending on departmental and university practices, publishing in journals with lower impact factors (even those flagship journals in the field) may harm one's chances of T&P. In addition, when submitting grants for external fundings, grant reviewers want to see that the PIs have published research in high-impact journals. Therefore, doing so increases the odds that a grant application will be taken seriously.

My approach is to publish both in behavior analytic journals and in higher impact, multidisciplinary journals. Some examples of the latter include *Experimental and Clinical Psychopharmacology*, *Health Psychology*, *Appetite*, *Physiology and Behavior*, *Journal of Experimental Psychology*, and *Behavioral Research and Therapy* (impact factor range = 3.2 to 5.87). Publishing more broadly also has several other benefits. One, a wider range of scientists are exposed to behavior analytic research, which keeps our science visible. Two, greater exposure means more citations of your research, which increases your *h*-index—a measure of impact that is often used for T&P and funding decisions (though, the interested reader should also see Koltun & Hafner, 2021 for why an *h*-index may not be the best indicator of impact). Third, publishing in journals with greater impact increases your competitiveness for faculty

positions across a wider range of institutions. For example, I can credibly market myself as a psychopharmacologist, health psychologist, behavioral economist, and even behavioral neuroscientist because my research has been published in journals representing these fields. Therefore, my profile may fit a wider range of available positions both within and outside of the academy. I also train my students to market themselves more broadly in this way.

Reach out to scientists from other fields if you want federal grants and higher-impact publications. The contingencies of getting grants and publishing in higher-impact journals are collaborative and multidisciplinary. Therefore, staying insular in behavior analysis is unlikely to pay off. It is perfectly appropriate to reach out to others outside of your field and talk about a potential grant idea or research project. Being flexible with the technical language of behavior analysis and how others talk about our field will be important in ensuring that conversations are productive. I personally feel like my research has been more meaningful to me because of my collaborations outside the field. The perspectives I have gained are invaluable.

Scholarship is a life-long process. When I look back at myself after graduating with my Ph.D., I see someone who was still very green in terms of research. I did not know this at that time. I had eight peer-reviewed publications, so I figured I knew a little something. But I still had a great deal to learn about scientific writing and grant writing in particular. Graduate school gives you the foundational skills you need to begin the academic journey, but practice and peer-reviewed feedback (surprise!) hone these skills. The peer review process will teach you repeatedly how to sharpen your writing skills, how to anticipate how reviewers will respond to what you write (and prevent those responses), and to develop openness and humility to critical comments (i.e., a thicker skin). I am not the same writer I was 20 years ago as a fresh Ph.D.; I am not the same writer I was ten years ago. And I hopefully will not be the same writer ten years from now. Be kind to yourself as you remember that research is a lifelong skill. Don't give up when you receive harsh criticism. Instead, make some time and space for the emotional responses and self-doubt, then come back to the critical comments as feedback that will strengthen your skills as a writer and scientist, rather than as a threat to your identity. Every revised draft I have made has been improved by the critical feedback of reviewers—every single one.

Specialize your research program. As a fresh Ph.D., I had big ideas about chasing multiple topics for research. My graduate advisor warned me against this, reminding me that the contingencies for a research program are in specialization—picking one area and sticking with it. It took me some time to realize that what he said was true. External grant reviewers want to see that you have a program of research; dedication to one area reassures them that you are an expert, and that the money will be spent wisely. Spreading yourself too thin across multiple topics might occasion others to characterize your record as “jack of all trades, master of none.” This is perfectly fine if that is your goal, but if your goal is to get an external grant or to be recognized as an expert in a specific research area, then specializing is the way to go.

External funding: if at first you don't succeed. . . . The nature of NIH (and other institutional) funding awarded to mid- or late-career scientists has implications for the new faculty member. First, be wary of institutions in which the funding of external grants is *required* for T&P; this places a faculty member in a precarious position, especially given that even some of the most meritorious applications do not receive funding (see NIH, 2021; Rocky, 2015). It is in your best interest to ask about T&P requirements before accepting a tenure-track position. It is also important to realize that requirements may change over time, so contingencies at the time of hire may not be the same ones later. Having ongoing conversations with your chair can ensure you are current in expectations along the way. Second, to build one's research credibility, one tactic that can pay off is to submit grants that are funded by nongovernment agencies (e.g., foundations or private companies) and take advantage of other organizations for seed money, such as the Center for Translational Research, state programs that fund seed

money for research (e.g., the Idaho IDeA Network for Excellence in Biomedical Research), and internal grants to supplement research and provide preliminary data for the larger grants. Your Office of Research, Office of Sponsored Programs, or others in your department can be a valuable resource for learning of such opportunities.

And finally, do not give up! It can be demoralizing when a grant application gets triaged (i.e., not discussed because it is not in the top 50%). It can also be confusing when a revision that initially received a high score gets a lower score or even triaged on the second round. It can also be frustrating when an application receives a high “fundable” score, but then receives no funding. It is helpful to understand the peer review process of the institution of interest. For example, at the NIH, funding decisions are made by the institute (there are 27) and this is a separate process from scientific evaluation, which is conducted first by the Center for Scientific Review (CSR). A high score from the scientific-review process is necessary for the next decision of funding by the institution (see NIH, 2019, 2022). To complicate matters further, the lore around NIH funding is that decisions are based 75% on merit and 25% on luck. For example, three scientific reviewers from the Scientific Review Group (SRG; also called study sections) are assigned to review an application. The application must be meritorious and enthusiastically regarded and promoted to the SRG by all three reviewers (but especially by the primary and secondary reviewers) to receive a high score, which is contributed by the SRG. PIs do not have any say or prediction in who will be the three specific reviewers of their application, though they do have access to a roster of those on the SRG (40–50 names usually). This is where luck comes in: if one reviewer is just a little lukewarm about the topic (even though the science is strong), this will affect your score. Further, even if the application receives a high score and is recommended for funding, the institute may not list your topic as a funding priority (contacting a representative from the institute to determine funding priorities is always a good idea before starting an application). Either one of these events can lead to an outstanding application not being funded. Despite these unknowns, doing some detective work in terms of knowing your SRG roster and institutional funding priorities can still increase your likelihood of funding. The advice of “just keep submitting applications” is sound—a worthy application can indeed eventually align with the planets and pay off.

Utah State University (USU): Doctoral-Granting, Very High Research Activity (R1)—the main campus of Utah State University is located in Logan (population 53,000), in the mountains in high-elevation northern UT, and is situated in the greater Cache Valley area, which has an estimated population of 150,000. Utah State has over 24,000 undergraduate students and 3,000 graduate students across the main and branch campuses, and over 900 professors on the main campus, which encompasses 400 acres. The mission of Utah State is to be “one of the nation’s premier student-centered land-grant and space-grant universities by fostering the principle that academics come first, by cultivating diversity of thought and culture and by serving the public through learning, discovery and engagement.” Of undergraduate students, 53% identify as women, 83% White, and 7% Hispanic. Over 50% of undergraduates receive federal grants, 20% are first-generation college students, and 77% are from Utah. Utah State has one of the oldest and most prestigious undergraduate research programs in the U.S.

Amy L. Odum, Ph.D, Professor: I have been a professor for over 20 years. I began my higher education at the University of Florida in Gainesville (UF), having grown up mostly in rural north Florida. At UF I was strongly influenced by a host of prominent behavior analysts, most notably Ed Malagodi, Tim Hackenberg, Marc Branch, Brian Iwata, and Hank Pennypacker, who were my professors. I helped to conduct research in the Malagodi/Hackenberg laboratory, where my first job was to clean pigeon operant chambers. It was a very dirty job. Eric Jacobs, who was a graduate student at the time, was a kind and wise mentor

to me. After graduating with my B.S., I worked for a couple years as a program director at a residential facility for people with developmental disabilities, a position I obtained because I had briefly served, frankly rather poorly, as an undergraduate research volunteer in Brian Iwata's laboratory with Jennifer Zarcone, Tim Vollmer, and others (graduate students at the time), studying self-injury in people with developmental disabilities.

These experiences made me realize that I was not, in fact, well suited for applied work, and I began looking for graduate programs in basic behavior analysis. I enjoyed basic research in which I could more fully control the relevant variables and experimental conditions, although over time I have come to realize that even in the laboratory, there is only so much we can control and understand. I earned my masters and Ph.D. at West Virginia University (WVU), where my mentor was Dave Schaal. I also was highly influenced by other faculty there at the time, including Andy Lattal, Mike Perone, Kent Parker, and Phil Chase. My research at WVU was in behavioral pharmacology and basic experimental analysis of behavior with pigeons. I was interested in the effects of delayed reinforcement on behavior as well as how environmental factors influence the effects of drugs on behavior.

After I completed my Ph.D, I began a postdoctoral fellowship at the University of Vermont's Human Behavioral Pharmacology Laboratory, mentored by Warren Bickel, studying delay discounting in people with drug addiction. Steve Higgins and John Hughes were influential to me as well. For example, Steve Higgins gave me my first review to conduct for the *Journal of the Experimental Analysis of Behavior*, which he read and gave me feedback on. In particular I recall his suggestion to be more helpful and kind, advice which has stuck with me to this day. Academia and the peer review process are difficult enough, so I do my best to be a caring and positive force within it.

After a year as a postdoctoral fellow, I became an assistant professor. I started at the University of New Hampshire (UNH), where Billy Baum had recently retired. Things went well overall at UNH, but in 2003 I accepted a position as assistant professor at Utah State University in Logan, where I remain today. Unlike UNH, where I mentored graduate students in a general Ph.D in psychology, USU offered the opportunity to revitalize a specialized graduate program in behavior analysis. While I was at UNH, I learned about their Preparing Future Faculty program, which emphasizes training in research, teaching, and service; this has continued to influence my approach to graduate training to this day as the majority of my students ultimately become professors.

My current research focuses broadly on delay discounting (the decline in the value of temporally proximal reinforcers) and animal models of licit drug use. My laboratory conducts research with both people and nonhumans (mostly rats but in the past pigeons as well). We have conducted research on topics that range from basic determinants of delay discounting (e.g., delay distribution and the order in which it is presented, the impact of history variables [e.g., cigarette smoking status]) to more applied and clinical research on how strategies for decreasing the extent to which delayed outcomes are discounted. Some of these projects have been conducted in collaboration with clinical behavioral analysts in my department, and other projects in collaboration with faculty from other specializations, such as the brain and cognition. As my career has advanced and I have been tenured longer, I have been focusing more on projects that are interesting to me but at higher risk for not producing publishable data in a timely manner. For example, as a full professor, I have been spending a lot of time and effort on developing a rat model of e-cigarette use (vaping), which has come with a host of technical challenges. My hope ultimately is to link these two lines of research to examine history factors like vaping that influence delay discounting in preclinical models, and how we may remediate the heightened delay discounting that may result.

I have been fortunate to hold a number of roles in the field of behavior analysis. I served as Associate Editor for the *Journal of the Experimental Analysis of Behavior* (JEAB), and then

was chosen as Editor in Chief. This position held some mixed feelings for me, because although I was surely not the first woman to be qualified for the position, I was the first woman to hold it since the inception of the journal in 1958. I am also serving the second of two eight-year terms on the board of directors of the Society for the Experimental Analysis of Behavior, which publishes JEAB as well as the *Journal of Applied Behavior Analysis (JABA)*, and have held the roles of vice president and president each, twice (I am currently president). I also served as president of Division 25 (Behavior Analysis) of the American Psychological Association. I am a fellow in the Association for Behavior Analysis International (ABAI) and was a founding member of the science board. For the ABAI program, I served as area coordinator for behavioral pharmacology as well as program committee chair. I am excited to have joined Jim Mazur as a coauthor on the ninth edition of the textbook *Learning and Behavior*.

Department Overview: The psychology department has grown tremendously during my time at USU, and we have currently over 30 tenure-track professors as well as five clinical/research track professors and a full-time lecturer. There are nearly 800 undergraduate psychology majors and approximately 225 graduate students in the department. The Ph.D. program comprises seven graduate specializations. Behavior analytic faculty work both in Combined Clinical/Counseling, which has been continuously accredited by the APA for nearly 50 years, and in the Behavior Analysis specialization, which has been active for over 50 years and currently features basic as well as applied and translational emphases. In conjunction with the department of Special Education and Rehabilitation Services, students in the Behavior Analysis specialization can meet the requirements to become Board Certified Behavior Analysts. Faculty frequently collaborate across programs, and the department prides itself on undergraduate education and involvement in addition to a thriving graduate program and highly productive faculty, many with large federal grants.

The typical teaching load for tenure-track faculty in the psychology department is 2:2, indicating that faculty are expected to teach two courses in the fall and two in the spring. Pre-tenure faculty have a reduced teaching load for their first few years, and course reductions are also available for intensive external service roles, such as journal editor or president of a society. We have role statements that describe the percentage of “evaluative weight” that teaching, research, and service hold for us, and the majority of professors have 45%, 50%, and 5% respectively, meaning that teaching makes up 45% of our evaluation, research 50%, and service 5%. Notably, these weights do not describe how much time faculty spend in these activities, but how these activities are weighted in our evaluations. This fact provides an important caution as well as tension for those who would take on major service roles. Course buy outs are also available, in which faculty can contribute a set amount of money from an external grant to help cover the cost of hiring someone else (graduate student or adjunct) to teach their assigned course. Faculty can buy out of all but one course a year, and in practice even this is negotiable.

Expectations for Scholarship: Criteria for annual evaluation are spelled out in the role statement, and for research incorporate multiple elements. One of these is a steady and consistent record of research endeavors supporting scholarly activity, which includes peer-reviewed materials like journal articles as well as books and book chapters, invited review articles, symposia presentations, and success in extramural funding. The output is expected to be sustainable over time, with the professor acquiring the resources needed to maintain their program of research. Professors are also expected to keep a positive professional reputation based on their scholarly activity. Furthermore, professors must articulate and sustain a focused and coherent theme in their research program. The role of the professor on any collaborative work with colleagues from other disciplines must be clearly described and

documented. It is expected that over time, professors will be major contributors and/or leaders in their research and scholarship, including in funding which supports their work.

Evaluations take place annually with the department head and, as of recently, incorporate the previous five years of work. To “meet expectations” for research, faculty must average at least three peer-reviewed products per year and submission of at least one external grant proposal per year. These publishing expectations have increased from two per year when I was first hired, and in practice, a number of faculty publish far more (e.g., 10–15 per year). Exemplary research performance in terms of number of articles and/or a large external grant received are required for “exceeding expectations” in annual reviews.

Promotion and tenure reviews are a separate process from annual evaluations and are conducted with a committee of faculty rather than the department head. To receive promotion and tenure, assistant professors need to meet the standard published in the USU faculty code, which states that promotion requires “an established reputation based upon a balance of teaching, research and service; broad recognition of professional success in the field of appointment; evidence of effectiveness in all of the professional domains in which the faculty member performs; and evidence of excellence in the major emphasis of his or her role statement.” Excellence is defined by the standards for associate professors within the person’s national professional peer group. Thus, in order to receive tenure and be promoted from assistant professor to associate professor, faculty must demonstrate excellence in the main area of their role statement, which is in most cases research.

Note that in the role statement, as well as in the criteria for promotion and tenure, there is no explicitly stated number of peer-reviewed products required, grants submitted or funded, etc. Furthermore, the function of the promotion and tenure committee is meant to be strictly evaluative, rather than advising or mentoring. Although advice may be given by the committee (and in practice often is), it is explicitly stated that promotion and tenure strategies as well as materials included in the portfolio are solely the candidate’s responsibility. These facets of the promotion and tenure process can be anxiety-provoking, but the annual reviews provided by the committee provide an assessment of the likelihood of the candidate’s record meeting the criterion of excellence for the main emphasis (typically research) and effectiveness for the other emphases (typically teaching and service) each year prior to the tenure and promotion decision. Thus, the ultimate judgement when it is made in the critical year should ideally come as a surprise to no one. Promotion to full professor requires the same criteria as promotion to associate professor, but with the additional requirement that promotion to the rank of professor “shall require an outstanding reputation in at least the major emphasis as defined in the role statement.” When you compare the annual evaluation process with the promotion and tenure process, it becomes clear that being “excellent” in the promotion and tenure process is “meeting expectations” in annual evaluations. Thus, the expectation and the norm are excellence. It can be difficult to feel like “enough” in this type of context, so it is important to work out what your values are and let your goals and efforts be guided by these. Then you can evaluate yourself with respect to how you’ve met your value-driven goals in addition to how you have met the department’s expectations of excellence.

Student Involvement: Undergraduate and graduate students are an integral part of my research. The involvement of students in my research program is very similar to that of Erin’s described earlier, so I won’t repeat the valuable information that she presented. Rather I will simply say that involving students in a meaningful way and inviting them to make contributions to the work at every stage is extremely fulfilling and substantially increases the creativity and relevance of the research conducted in my lab. In conjunction with my students, who have different life histories and knowledge than I have, we can think of ideas

that wouldn't occur to us individually. Their fresh takes on long-time topics keep the work interesting and timely. I give them a great deal of autonomy in their research so that they can learn many of the things that come only from experience. Rules go only so far, and may not be remembered as well as contingency-shaped procedures when they have their own laboratories.

I follow a junior-colleague model, in what we have termed the "lab family" approach, which is a form of vertical mentoring in which all laboratory members (myself included) mentor and guide members who have less experience and knowledge. This means that my graduate students get a lot of mentoring experience while still in graduate school. My goal is that when students leave my laboratory, I am confident that they will be able to establish their own laboratory, with everything that goes into that large and complex task. Therefore, I give them increasing levels of independence so that by the time they earn their Ph.Ds, they can function virtually autonomously, although I still oversee their work and give advice and guidance. It can be a bit scary and challenging to let students make decisions about the course of a project after discussing the pros and cons of different directions rather than to *tell* them what to do, and it can also be the same for students to bear that responsibility. For that reason, I let students know that I can make decisions if they don't feel ready and provide additional direction at their request. Over the years, I have tried to identify the optimal level of support and scaffolding my students need to develop into their own, and to be open to and welcoming of feedback from my students regarding my mentoring and supervision. I highly recommend LeBlanc et al.'s (2020) "Building and Sustaining Meaningful and Effective Relationships as a Supervisor and Mentor," which I am working to incorporate into my relationships with my students.

Sources of Funding: Research at USU is funded in a variety of ways. First, there are a number of mechanisms through which my undergraduate and graduate students can apply for direct funding. These include guaranteed internal funds from the department and college for undergraduate honors theses, master's theses, and dissertation research. Additionally, students may compete for internal grants. These are increasingly competitive, and recently have been funded at rates not unlike that of external grants. Finally, my students often write and receive external grants from associations, societies, and foundations.

USU also provides a number of funding opportunities for research that is not student-led. As is common, I received a start-up funding package that provided initial financial support to cover the cost of equipment and other necessities, such as animal purchases and per diems and payments for human participants. Importantly, after the start-up funding, most resources available to USU professors in psychology are highly competitive. For example, internal grants come from the Office of Research, which receives applications from all disciplines across the university. The competitive nature of this process often requires second-round submissions with award rates similar to that of external sources. In recognition of the lack of ready internal funding, our department recently transformed our individual travel fund to an individual research and professional-development fund. This small amount of guaranteed funding for each faculty member will be helpful, but for animal research, which is quite costly, external funding is required. This requirement is one of the more stressful aspects of research at USU to me. My salary is completely covered by my institution, but at some major research universities, even portions of tenure-track professors' salaries must come from external funding.

Over the years, I have collaborated on a number of successful external grants as well as received some as principal investigator from the NIH. These include grants from the National Institute of Mental Health, the National Institute on Alcohol Abuse and Alcoholism, and the National Institute on Drug Abuse. All of Erin's advice about grants is excellent, and I won't duplicate it here. One thing that is helpful about USU is the way that indirect

costs on an external grant are handled. Indirect costs are the general costs charged by the institution to support the research in addition to the direct costs of actually conducting the research. USU returns a portion of indirect costs to the college of the investigator, which in my case is the College of Education, which then returns a portion of the indirect costs to the department (in my case Psychology), which then in turn returns a portion of the indirect costs to the principal investigator on the grant project. These dollars form a general research fund that investigators can use to support research projects other than the grant. Research in my animal laboratory has been funded extensively by indirect costs generated by grants for other animal projects or even those that fund human research. The amount of indirect cost returns varies widely across universities, with some offering none, but at some institutions, this source of money can be a real boon to creativity and productivity as not all research must be funded with specific external sources.

Words of Wisdom: I have a few bits of advice to add to Erin and Kelly's very helpful and detailed recommendations. They include strategies for establishing and maintaining healthy writing habits, which many faculty find challenging.

Distinguish between the writing and editing processes. I remember sharing a lovely dinner with one of my favorite mentors and research collaborators Tony Nevin, by then emeritus faculty at UNH and well into his 70s. After dinner—glass of wine in hand—he said he was going to go write for a while. To my surprise, no sooner had he sat down at his laptop than the clickety clack of his keyboard started up at a vigorous pace. As a new assistant professor, it still took me quite a while to get started when I sat down to write, and so I thought a great deal about how it was that Tony could sit down and begin writing immediately. Obviously, he had a great deal more experience, but in talking to him, I found he also wrote without concern for the exact word choice or turn of phrase. On reflection, I realized that sometimes I took a long time to write because I conflated the writing and editing phases. By giving myself permission to write imperfectly, with a commitment to edit my writing *later*, I was able to get going much faster and to maintain a higher speed once I was writing. At times, I even resorted to a bit of absurdity. If I didn't know what to write for a topic sentence, for example, I would write something to hold the space, like “this is a topic sentence,” and move on to the details of the paragraph if I could. If I was really struggling, I would even say aloud and concurrently type things like “I'm typing! I'm at my computer and I'm typing! I'm at my computer and I'M TY-PING!” (thanks to Will Ferrell in the movie *Elf* for this idea). Somehow typing, even if the content wasn't *right*, set the occasion for more typing, and eventually I would be on my way. I find I no longer need this strategy to get going, but it was a lighthearted way for me to deal with what can be a serious issue.

Better living through (applied) behavior analysis. In the past, I found myself struggling to get started on large writing projects; I still do, on occasion. My solution is inspired by basic EAB research in which pigeons respond for reinforcers on fixed-ratio schedules. Under such schedules, a certain number of responses are needed to produce a reinforcer. The larger the upcoming ratio, the longer the pigeon will pause before getting started. If you break it up and give the pigeon a conditioned reinforcer, like a flash of the key light, for smaller units within the ratio (called a second-order schedule), the pauses are much shorter and the pigeon works more steadily (Ferster & Skinner, 1957). Thus, for myself, I break up larger writing tasks into smaller units until I reach a unit I can easily complete. For example, it may be difficult to get started if you tell yourself you are writing an NIH grant, but much easier to begin if you tell yourself you are writing the first paragraph of the specific aims. This tactic of breaking up projects into small-enough units so that you can easily complete the task, combined with the other tactic of separating writing from editing, has been enormously helpful for me over the years and others I have shared it with. If you share these struggles in your writing, then I hope it will be helpful to you too.

Strive consistently to improve your writing. I recommend a writing diary. Writing *well* is a long-term learning process, as Erin noted, and at this point, I enjoy honing my craft. In the beginning of my graduate school career, however, back in the days of red pen on hard copy, it was daunting. For my graduate students, I have them note each piece of feedback they receive on their writing in a document, and how they addressed the feedback. For example, they may receive the suggestion to strengthen a topic sentence so that it covers the contents of the paragraph. They can then note how they did so. Sometimes students receive comments on grammar, such as use of a semicolon v. comma. In this case, they would write the rule for when to use which. Over time and with consistent review, the writing diary is refined and condensed as patterns become clear. The student eventually has a guide that they generated with solutions to their unique writing challenges and growth points. They can then review this guide as they are editing their work, and thus become more and more independent. If you are already past the stage where you regularly receive detailed feedback from a mentor on your writing, consider requesting some from a trusted colleague or mentor. Additionally, you could start a writing diary with feedback from the peer review process, like manuscript reviews and grant reviews. The goal is to notice your common challenges as well as build a ready-to-deploy arsenal of solutions to those challenges. As you are writing that manuscript or grant, you can review your specific issues and improve them *before* you hit submit.

Some Final Thoughts

The previous narratives highlight some similarities in the scholarship practices and expectations across the academic landscape. These include the integral role that students play in research and our approaches to mentoring, expectations to produce scholarly products, and the necessity of research funding. However, there are some explicit and important differences, especially between undergraduate-focused institutions, such as MU, and the more research-intensive universities. The most notable include the amount of scholarly productivity required for tenure and promotion and the amount of external funding faculty members are expected—and even required—to secure.

These differences should be taken into account when going on the job market, especially when applying for your first academic position. None of these models is better than the other—rather they emphasize different aspects of scholarship, broadly defined, and each provides opportunities for growing the field. For example, faculty at R1 and R2 schools are producing the lion's share of peer-reviewed publications and producing doctoral-level behavior analysts. Faculty at smaller schools, however, have the freedom to focus on recruiting talented undergraduates and preparing them for graduate study; in a way, they serve as feeder schools to the larger institutions. Together, they form a sort of “training ecosystem” for the field. The type of institution that is right for *you* is the one that most closely aligns with your personal professional goals and plays to your strengths. Ideally, it will also provide a supportive environment for you to work on your weaknesses, whatever they may be. Whichever career path you choose, remember that you are more likely to succeed at an institution at which you can spend the majority of your time engaged in activities that are personally fulfilling. Don't let others coerce you into taking one path or the other based on *their* personal and professional values.

Finally, remember that to be a scholar is to be a lifelong learner. This does not simply mean the accumulation of more factual knowledge; it primarily refers to the consistent and intentional cultivation of new skills and growth within your professional field over the course of your academic lifetime. The ability to demonstrate such a pattern is indispensable in successfully navigating the scholarship expectations at any academic institution.

Notes

1. As of July 1, 2022, PASSHE will comprise ten universities after three schools in the west and three schools in the northeast are integrated to form two universities.
2. Full time = 4,916; Female = 59%; White = 75%, Hispanic = 10%, Black = 8%; Pell Grant Recipient = 25%; First-Generation ~ 17%
3. PA resident = 95%; Female = 84%; White = 72%, Hispanic = 14%, Black = 8%; Pell Grant Recipient = 34%
4. The weighting algorithm that produces the highest score for each applicant is the one that is used.

References

- Boyer, E. L. (1990). *Scholarship reconsidered: Priorities of the professoriate*. The Carnegie Foundation for the Advancement of Teaching. <https://files.eric.ed.gov/fulltext/ED326149.pdf>
- Carnegie Foundation for the Advancement of Teaching. (2022, April 24). *The Carnegie classification of institutions of higher education* (2021 ed.). Error! Hyperlink reference not valid.
- Ferster, C. B., & Skinner, B. F. (1957). *Schedules of reinforcement*. Appleton-Century-Crofts. <https://doi.org/10.1037/10627-000>
- Jacobellis v. Ohio, 378 U.S. 184 (1964). www.oyez.org/cases/1963/11
- Koltun, V., & Hafner, D. (2021). The h-index is no longer an effective correlate of scientific reputation. *PLoS One*, 16(6), e0253397. <https://doi.org/10.1371/journal.pone.0253397>
- Lauer, M. (2021). *Long-term trends in the age of Principal Investigators supported for the first time on NIH R01-equivalent awards*. <https://nexus.od.nih.gov/all/2021/11/18/long-term-trends-in-the-age-of-principal-investigators-supported-for-the-first-time-on-nih-r01-awards/>
- Lauer, M., & Roychowdhury, D. (2021). Inequalities in the distribution of national institutes of health research project grant funding. *eLife*, 10, e71712. <https://doi.org/10.7554/eLife.71712>
- LeBlanc, L. A., Sellers, T. P., & Ala'i, S. (2020). *Building and sustaining meaningful and effective relationships as a supervisor and mentor*. Sloan Publishing.
- National Institutes of Health. (2019). *NIH peer review: Grants and cooperative agreements*. National Institutes of Health Office of Extramural Research. <https://grants.nih.gov/grants/peerreview22713webv2.pdf>
- National Institutes of Health. (2021). *NIH success and funding rates*. NIH Data Book. <https://report.nih.gov/nihdatabook/category/10>
- National Institutes of Health. (2022). *Peer review*. NIH Central Resource for Grants and Funding Information. <https://grants.nih.gov/grants/peer-review.htm>
- Rocky, S. (2015). *What are the chances of getting funded?* National Institutes of Health. <https://nexus.od.nih.gov/all/2015/06/29/what-are-the-chances-of-getting-funded/>
- Shaham, Y., Shalev, U., Lu, L., de Wit, H., & Stewart, J. (2003). The reinstatement model of drug relapse: History, methodology, and major findings. *Psychopharmacology*, 168, 3–20. <https://doi.org/10.1007/s00213-002-1224-x>
- Venniro, M., Caprioli, D., & Shaham, Y. (2016). Animal models of drug relapse and craving: From drug priming-induced reinstatement to incubation of craving after voluntary abstinence. *Progress in Brain Research*, 224, 25–52. <https://doi.org/10.1016/bs.pbr.2015.08.004>