

# Smoothing the Pipeline: A Strategy to Match Graduate Training with the Professional Demands of Professorship\*

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## Abstract

Faculty recruitment and Ph.D. student placement have become increasingly competitive over the past decade. The emphasis of graduate student training—research above all else—often means a difficult transition into the professoriate, where expectations for faculty are broadened to include teaching and service. In response, we offer a model of an organizational structure for research in which: (1) graduate students gain opportunities to collaborate on research with faculty, (2) teach in their areas of expertise, and (3) begin their mentoring careers. We argue that these structures will help ‘smooth the pipeline’ between graduate school and academic jobs, and will be particularly helpful in supporting graduate students from historically underrepresented groups.

**Keywords:** graduate students, junior faculty, mentoring, diversity

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## 1 Introduction

Junior faculty in political science, as in many other disciplines, must produce a high-quality and, often, high-volume research portfolio within the first few years of their professorship in order to gain tenure and continue researching and teaching at their current institutions (Rothgeb and Burger 2009). Readers of this article are sure to recognize that this task is complicated by the fact these same new faculty must teach undergraduate and, and in some cases, graduate courses—often for the first time and with limited guidance on instructional design—in addition to fulfilling various department and university service expectations (Evans 2007; Rothgeb and Burger 2009). In addition, women, first-generation, and scholars of color, in particular, are explicitly and implicitly expected to shepherd students with similar backgrounds, disproportionately adding to these young professors' load (Evans 2007; Pittman 2010; Turner, González, and Wood 2008). While essential for professional and personal development, these service and mentoring activities, if not perfectly balanced with research output, threaten junior faculty's future job security (Beaulieu et al. 2017; Monforti and Michelson 2008; Ortega-Liston and Rodriguez Soto 2014). One is left to wonder, then, the recipe for successfully balancing research, teaching, and service.

While we do not presume to have developed a perfect recipe for achieving balance between the multiple expectations new faculty face, we argue that adjustments can be made to graduate training, whereby Ph.D. students gain needed practical experience in teaching and mentoring *before* joining the professoriate. Graduate students need to be prepared for the academic job market, but also for the daily realities of being a professor. It is our hope that adopting our proposed suggestion—providing opportunities for graduate students to get experience with collaboration, project management, teaching, and mentoring in the

context of a research laboratory—will allow for a smoother transition from graduate student to junior faculty member.

Graduate students face a set of challenges which, if left untackled, may follow them into junior professorship and have implications for their future professional success. First, graduate students may not have opportunities for research collaborations, restricting the number of early-career publications that would make them competitive on the job market and serve as the building blocks of their future tenure portfolio. Second, graduate students may have few opportunities to teach, particularly as the instructor of record and in their areas of interest or expertise. In addition, graduate students frequently have little training in effective pedagogy and instructional design— creating yet another stumbling block for their performance in their first academic appointments. Third, and finally, graduate students rarely have the opportunity to mentor undergraduates, leaving them ill-prepared to serve as mentors early in their careers.

We ignore these issues at our peril, as these are exactly the types of problems that lead to the ‘leaky pipeline’ in academia (Monforti and Michelson 2008; Nettles and Millett 2006). Providing guidance for graduate students and support for junior faculty during this important transition period is important for all faculty, but it is especially critical for advancing the presence and status of women, first-generation, and scholars of color in the American academy (Evans 2007; Jordan-Zachery 2004). It is imperative that we seek out opportunities to ‘smooth’ the pipeline.

In light of professional expectations and market demands, and current deficiencies in graduate training, we have developed (and are continuing to develop) a research laboratory—effectively translating a team-based, semi-hierarchical research model from the

natural sciences to the social sciences. While the majority of the Lab's members are undergraduates, a major purpose of the Lab is to create opportunities for graduate students to gain practical experience, not only with the process of producing scholarship, but also with teaching and mentoring. In essence, we are training the graduate students in our lab to be Principal Investigators (PIs) and gain direct experience with the research, teaching, and mentoring expected of faculty. Our lab is a network of scholars in which graduate students gain opportunities to teach in their areas of expertise, collaborate with faculty and their peers, and begin their mentoring careers. The model we have developed may be adapted in a variety of institutional contexts in which graduate students are trained and may be extended beyond political science to other cognate fields.

## 2 Balancing Research, Teaching, and Service: An Evergreen Problem

Across successive generations of scholars, academic fields generally become more competitive and expectations for faculty increase accordingly. While the academic job market has largely been a buyer's market, this has been amplified in the ten years since the 2008 financial crisis, which led many colleges and universities to enact hiring freezes and reduce their budgets. This has had follow-on impacts on the job market, as the number of jobs decreased for a period (Jackson and Super 2018) while the number of Ph.D.s produced has increased. The National Science Foundation reports that 618 Political Science Ph.D.s were conferred in 2005, 728 in 2010, and 859 in 2015 (the most recent year for which there is data). Of the 2015 cohort, only 31.9% found tenure-track positions.

In recent years, the academic job market and promotion to tenure have become more competitive. In addition, publication expectations have increased, while the percentage of

journal articles accepted has decreased (Meyers and Super 2016). This highly competitive world is the one that faculty in Ph.D.-granting institutions see every day and has an impact on how they train graduate students—they frequently advocate that students spend their time on research above all else.<sup>1</sup> However, the modal job in Political Science is one with higher teaching and service expectations and lower research expectations than those faced by faculty at Ph.D.-granting institutions.

This disconnect can be bewildering for new junior faculty. How should they balance these new expectations, for which they may have comparatively little training and experience?<sup>2</sup> How can they continue to pursue the research that likely attracted them to pursue a Ph.D. in the first place, while also allowing them to work successfully in their new context and work towards earning tenure?

To complicate things further, the discipline and institutions of higher education are (rightly) making attempts to diversify the academy and make sure that there is support for all members of the professoriate. However, the issues related to the transition from graduate student to faculty are likely to be more difficult for members of underrepresented groups (Colgan 2017; Dion 2008; Hesli, Fink, and Duffy 2003; Kadera 2013; Maliniak, Powers, and Walter 2013; Mitchell and Hesli 2013). They might not feel supported or not have appropriate mentorship; they are likely to receive higher service loads; and the metrics typically used to evaluate faculty—teaching evaluations, publishing rates, citations counts,

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<sup>1</sup> This is not meant to be an indictment of faculty at Ph.D.-granting institutions; faculty as mentors tend to generalize from their own experience. We also do not mean to say that faculty *should not* train their grad students to pursue publishable research projects, but we will argue that a more well-rounded approach that includes experiences teaching and mentoring before students graduate will both help them transition to junior faculty more efficiently and effectively and need not negatively impact their research activities.

<sup>2</sup> A recent paper by Josiah Marineau (2018) enumerates some of the differences between teaching-oriented institutions and research-oriented institutions and how new junior faculty might navigate transitioning between the two.

etc.—may be biased against them. These issues are likely to contribute to the ‘leaky pipeline,’ that members of these groups are more likely to drop off of the tenure-track or leave academia (Monforti and Michelson 2008, Hancock 2013, Goulden 2013).

Assuming that we want to help prepare *all* graduate students to be successful members of the profession and assuming that members of the profession need to be active in teaching, service, and research, what should we emphasize in graduate training and mentoring? The standard response, at least as evidenced by norms in the discipline, is that graduate students should focus on research and not be particularly worried about other forms of professionalization. Some have called for greater attention to teaching Ph.D. students how to teach (Ishiyama and Balarezo 2011; Ishiyama, Balarezo, and Miles 2014), but some advisors and mentors might be concerned that this may take students’ attention away from research.

The problem with the current discussion is that there is frequently an implicit assumption that the balance between teaching and research is zero-sum. While a scholar’s time is finite, that does not mean that there are not activities that contribute to development in both areas. In the Scholarship of Teaching and Learning, the ‘teacher-scholar’ model is assumed, reflecting an acceptance of the synthesis between teaching and research (Chall 1986; Hattie and Marsh 1996; Hesli, Fink, and Duffy 2003; Ruscio 2013). Within Political Science, King and Sen, advocate for this approach, most notably endorsing the idea that “Teaching teaches the teacher” (2013: 622). Political Science, as a discipline, needs to adopt the perspective that teaching, service, and research can be mutually constitutive and reinforcing, and set up institutions that can support graduate student development in these areas simultaneously.

### 3 Some Frequently Observed Deficiencies in Graduate Student Training

As previously outlined, graduate students face a set of challenges with respect to their training in research, teaching and mentorship. Taken together, these challenges in graduate training conspire to produce a tremendously difficult entry into the job market as well as an overwhelming transition to professorship.

On the research side, graduate students may have modest data management, analysis, and visualization skills relative to professional expectations and requirements, due to a lack of strong training as undergraduates. In addition, a heavy load of discipline- or sub-discipline-specific courses in the first two or three years of graduate school may limit training in data science. On the teaching side, graduate students generally have too few opportunities to teach—both as the instructor of record and in their areas of interest or expertise—posing a problem for course design, the development of one’s pedagogy, and the construction of one’s teaching philosophy. In addition, graduate students receive little training on how to teach effectively (Ishiyama, Miles, and Balarezo 2010). If graduate students are not taught and, thus, do not adopt best practices when teaching in graduate school, they are highly unlikely to integrate them into their teaching once they are professors (Finkel and Monk 1999; Shannon, Twale, and Moore 1998). Finally, on the mentoring side, graduate students are unlikely to develop mentoring relationship with undergraduates. This is due, in part, to the aforementioned heavy course loads, graduate assistantship obligations, and emphasis placed on the preparation of manuscripts for peer review and publication (Buehler and Marcum 2007, 23).

The current structure of graduate training and professionalization in both research and teaching may leave graduate students ill-equipped in a fiercely competitive market, as

well as ill-prepared to hit the ground running as assistant professors with various research, teaching, and service expectations. If left unaddressed within the course of one's graduate education, these challenges may severely hinder professional success. This may especially be the case for scholars from diverse backgrounds who are more often replaced than retained in the American academy and whose advancement may be disproportionately prolonged (Evans 2007; Moreno et al., 2006).

#### 4 Smoothing the Pipeline: Organizing Research for Productivity *and* Professionalization of Graduate Students

While the Ph.D. program may serve as time and space for exploring one's own response to the challenges described above, formal instruction or even advice on this matter can be scarce. Instead, graduate students are left to sink-or-swim as they attempt to navigate what may seem like hostile waters. With this in mind, we have sought to create an organized space for collaborative research, non-traditional teaching, and mentorship within our research Lab. We are forward-thinking both in our research and in our approach.<sup>3</sup> The organization of the USC Security and Political Economy (SPEC) Lab, which we describe below, helps smooth the pipeline between graduate training and the professorate, equipping and supporting our graduate students as researchers, teachers, and mentors.

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<sup>3</sup> We do not mean to imply that we are the only scholars in Political Science to have a research Lab, nor the only ones to use the structure of a Lab to support graduate training. For example, Druckman, Howat, and Mullinix (2018) make a strong case for research labs in experimental Political Science; however, we contend that this type of structure may be beneficial irrespective of research approach. Readers might also be interested in the research strategies detailed in Bolsen et al. (2018).

#### 4.1 Structure, Recruitment, Modes of Participation

The SPEC Lab conducts collaborative, team-based research at the intersection of international security and economic development. The Lab is led by three faculty PIs and a Ph.D. student director, who together recruit, train, and mentor our fifty-plus undergraduates. In order to demystify the research process and enhance professionalization, we aim to have graduate and undergraduate students involved in all phases of a project: theory development, data gathering and cleaning, empirical analysis, writing and revising.

Teams generally consist of a faculty PI, graduate student, undergraduate team lead, and five to seven additional undergraduate researchers. Given the Lab's research orientation, we recruit Ph.D. students who specialize in comparative politics and international relations, typically at the end of their first year. Most graduate researchers work in the Lab for the remainder of their graduate career. Graduate students first join a faculty project based on shared interests. As will be further discussed, projects are largely developed by faculty, but graduate students who have spent at least a year in the lab are offered the opportunity to start their own team, which is usually built around their dissertation research. Undergraduate members come from a general recruitment pool with applications regularly collected at the beginning of each term. Generally, we expect undergraduates to stay for a year but we encourage multi-year membership. Demand for new undergraduate members varies from term to term, based on whether or not there are new projects or if there is student attrition.

We intentionally recruit promising students from groups that are historically underrepresented in comparative politics and international relations, namely women and students of color. Graduate and undergraduate students spend six to eight hours a week

working in the Lab, inclusive of weekly team meetings and monthly lab meetings. In any given year, graduate students are compensated either through a formal, paid research assistantship, co-authorship on articles, or research support from an undergraduate research team that the Lab recruits and pays. Many, though not all, undergraduates are compensated either through paid research assistantships, Federal Work Study, or co-authorship on popular press articles based on Lab publications (e.g., in *The Washington Post* Monkey Cage). With the exception of students compensated through Federal Work Study, we prioritize senior undergraduate lab members for the paid positions and popular press pieces.

#### 4.2 Collaborative Research and Project Management

The expected trajectory of a graduate student in the SPEC Lab is to begin as a research assistant (RA) and finish as a PI. In the first semester, students work directly with one of the three faculty PIs, supporting pre-existing research, whether conducting literature reviews, managing and transforming data, analyzing and visualizing data, or preparing manuscripts for publication. In the second and third semesters, graduate students begin managing a team of undergraduate RAs in the context of a collaboration with the faculty PI. And, in the fourth semester, when they have completed the mentored PI training and have defended their dissertation proposals, graduate students have the opportunity to continue in the Lab as a graduate PI, engaging their own team of undergraduate researchers, usually with the purpose of collecting data for their dissertation.

Our scaffolded training experience is designed to teach graduate students how to engage in collaborative research and manage teams and projects. The earlier stages of

training teach students how to conceptualize and execute a research project—defining its goals, breaking them down into manageable pieces, and delegating tasks to undergraduates corresponding with their skill level. In the latter stages of training, graduate students operate as PIs themselves. At every stage, students gain important skills that will enhance their scholarly productivity, both as graduate students and when they transition to being junior faculty members.

#### 4.3 Non-Traditional Teaching Opportunities

In contrast to traditional graduate teaching assistantships, graduate students in the SPEC Lab have the unique opportunity to teach in their areas of interest. This enables them to develop approaches to teaching undergraduates coming from diverse personal and academic backgrounds. Graduate students have designed and offered short courses in substantive areas, such as transitional justice and economic development, as well as workshops in data science.

The target audience for the substantive short courses is typically lab members serving on a graduate PI's dissertation research. For example, the graduate student co-author of this article designed and taught short-courses within the Lab about quasi-judicial bodies operating in the areas of transitional justice and economic development, in preparation for data collection on a set of projects—the first with a faculty PI and the second for her dissertation. For substantive short courses like this one, graduate students create a syllabus, defining a set of learning objectives in the same way they would when teaching a course. They expose undergraduates to the relevant literature, identifying the gap in research the graduate investigator seeks to fill and familiarizing undergraduates with the

concepts they will be coding. Crucial to this process is orienting the undergraduates to the larger picture, though they may fulfill smaller tasks within the larger project. In this way, undergraduates are invested in even small tasks, given what is at stake for the research as a whole.

The target audience for the data science workshops is graduate and undergraduate students. The opportunity to design and offer these workshops has been vital for our graduate students' development and creating opportunities beyond the lab. For example, the students who created the data training modules in statistical programming and data visualization did not initially have an outlet for teaching these topics. However, this experience has opened up opportunities outside of the Lab and in partnership with Ph.D. programs across our university to train their peers. The success of these training modules has also led to the development of courses in applied data science now regularly offered by one of the Lab PIs.

Crucial to graduate student teaching in the Lab is the use of high-impact practices, such as experiential learning activities like data collection. At first glance, data collection may not appear to be a teaching method, let alone a useful one. Yet, if taken as a deliberative exercise, data collection can generate substantive as well as meta-cognitive skills. Coding obstacles, such as classifying cases that do not neatly fit within codebook parameters, produce vibrant discussion among team members. Data collection is just one of many strategies the graduate student co-author has developed to create knowledge of the institution or phenomenon being studied, as well as evaluate her students' understanding. In this way, she has been able to experiment with different teaching methods, assess their relative effectiveness, and continue building on her skill-sets.

In addition to teaching groups of both peers and near-peers, graduate students offer “Statistics Consulting Hours” as part of their time commitment to the Lab. Students are available to explain statistical concepts, trouble-shoot code, and brainstorm options for analysis with members of the university community writ large. These experiences not only give our graduate students experience teaching others about statistical methods, but it also enhances their own knowledge and research productivity.

#### 4.4 Mentoring Experience

Finally, graduate students in the Lab gain the unique opportunity of mentoring a specific group of undergraduates over a semester and, in some cases, over multiple years—an opportunity from which they enjoy “improved qualifications and career preparation, cognitive and socioemotional growth, improved teaching and communication skills, and greater enjoyment of their own apprenticeship experience” (Dolan and Johnson 2009). Women, first-generation, and graduate students of color often need a venue for mentoring, especially for mentoring of individuals with whom they share identities and experiences (Jordan-Zachery 2004; Monforti and Michelson 2008; Ponjuan 2011). And, our Lab provides just this venue. Cognizant of diverse students’ marginality in political science, aware of their decreased likelihood of exposure to undergraduate research experiences (UREs), and aiming to resolve the pipeline problem, our women, first-generation and graduate students of color are uniquely poised to open up opportunities to students from similar backgrounds. The Lab is thus able to recruit and develop the best talent.

Anecdotal evidence indicates that the mentoring we describe is fulfilling for both graduate students and their undergraduate mentees. Prior scholarship has also

demonstrated that undergraduate retention and satisfaction is enhanced through such mentoring relationships (Jacobi 1991; Gregerman et al. 1998; Jordan-Zachery 2004; Ponjuan 2011). And, we expect that this is also the case for graduate student retention and satisfaction. In addition, scholars have found that gender similarity between mentors and mentees and the “mentor’s supervisory status [interact] to influence psychosocial support, career development, and career satisfaction” (Sosik and Godshalk 2005). We are thus developing and supporting the whole person, not just the scholar.

Again, we return to the theme of awareness and intentionality. Women, first-generation, and scholars of color, at all levels, face a unique set of challenges and institutional barriers, especially in political science (Evans 2007; Jordan-Zachery 2004). Once professors, mentorship of other women and diverse scholars is an unspoken expectation—one held by students, colleagues, and university administrators. Mentoring is, therefore, vital. Yet, these scholars must also perform according to disciplinary standards—e.g., publishing articles and books, hosting, facilitating and attending professional association conferences, etc. (Beaulieu et al. 2017; Rothgeb and Burger 2009). Since, “[e]nlarging the ranks of women and faculty of color, in particular, women faculty of color, is instrumental to ensuring a dynamic and relevant political science in the twenty-first century” (Sinclair-Chapman, 2015: 454), these scholars need a space in which they can learn how to balance time and expectations. Our Lab is a space for learning how to mentor and how to mentor well, as well as for practicing the tough balancing act required of women and diverse scholars, reducing the special burden shouldered by these scholars in graduate school and making more smooth the transition to professorship.

#### 4.5 Benefits to Research, Teaching, and Mentoring

Based on research on the “pipeline problem”—barriers to access and barriers to retention of a diverse faculty—we know that students from underrepresented groups are less likely to be invited to serve as RAs, co-author peer-reviewed publications, and receive research support for their dissertations. The SPEC Lab model seeks to provide a corrective to this uneven distribution of opportunities and resources.

Membership in the SPEC Lab enlarges and enhances graduate student portfolios in several ways, which should enhance their prospects on the academic job market and support their journey to tenure. In terms of research outputs, by the time their Ph.D. is conferred, our graduate students have at least one paper co-authored with one of the PIs, a new dataset for their dissertation and future book project, and thousands of undergraduate RA hours spent supporting their research. In terms of teaching outputs, graduate students have a syllabus for either a substantive or methods class, practical experience teaching these subjects, and, for students who have taught the data training workshops, a set of Lab-designed teaching evaluations to include in their job applications.

For both issue- and methods-focused syllabi, students can transport both their materials and experience with them to their next academic appointment, easing the transition to professorship. Of course, none of this is a substitute for being an instructor of record for a course. However, in our institutional context, where students do not have the opportunity to teach their own courses, the non-traditional teaching opportunities we describe are vital, as our students will nevertheless be required to teach multiple courses once they are junior faculty.

## 5 Conclusion

We conclude where we began: with the puzzle of how to balance research, teaching, and mentorship early in one's academic career, with particular interest in the socialization and development of women, first-generation, and scholars of color. As we write this reflection, we are mindful and urge that "To move toward institutional change, we must all be willing to accept the responsibilities that the unevenness of the system produces" (Smooth 2016, 525). Systematic inequalities in recruitment, cultivation, satisfaction, and retention of members of underrepresented groups in the American academy have motivated us to re-envision graduate training in a way that (1) gives Ph.D. students practical experience in teaching and mentoring *before* they enter the professoriate, (2) improves the transition to junior professorship, and (3) enhances the likelihood of advancement in the profession commensurate with their varied and critical contributions, and consistent with individuals who occupy spaces of privilege.

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