The Early Career Section offers information and suggestions for graduate students, job seekers, early career academics of all types, and those who mentor them. Angela Gibney serves as the editor of this section. Next month's theme will be variations in academic math jobs.

Research

How to Balance Research with Everything Else We Have to Do

David Zureick-Brown

My institution's tenure and promotion guidelines describe my position as "40% research, 40% teaching, 20% service." Teaching includes three courses each year, but also advising PhD or honors thesis students, and service includes committees, organizing conferences, refereeing, recommendation letters, etc.

I interpret this breakdown literally and typically set aside two full days each week for undistracted research time, two days for teaching (prep, lectures, office hours, meeting with students, grading, reading courses, student learning seminars), and one day for service. In practice the teaching and service days blur together, and I also set aside a day for (mostly) nonacademic work (errands, shopping, food prep, coordinating travel, processing email (usually in batch mode), and planning out my week).

My research time is sacred. One would never skip teaching a lecture or a committee meeting for reasons related to research, and I encourage the converse. Work off campus if necessary, or at least with a closed door, headphones on, immune to distraction.

Create (and protect) research time. I used to "joke" with contemporaneous early career faculty that our workload doubled each year. The joke quickly aged.

I recommend reading some book like *Getting Things Done* by David Allen or *Deep Work* by Cal Newport, or the archives of an academic blog with a heavy advice subtheme (e.g., by Terry Tao[1] or Matt Might[2]). Here are a few ways that I implement their ideas.

Become organized. A main message of books like *Getting Things Done* is: if you can do something in 1–2 minutes, just do it; otherwise, schedule when you are planning to do it and put it out of sight and (especially) out of mind until then.

I do this via a calendar (synced with my phone, tablet, etc.). If I have a recommendation letter to write (or slides to make, PhD applications to read, etc.), I schedule a block of time (not just a reminder) to work on the task.

When I get a request to (for example) upload an already written recommendation to yet another UC school, I do it immediately (and organize so that it takes literally under a minute).

Email. Process in batch mode. Usually I'll set aside a few hours over the weekend to handle as many menial tasks as I can all at once. Throughout the week, I'll usually set aside half an hour for email in the mornings and another fifteen minutes at the end of the day, and otherwise I mostly don't check email (especially not on my phone, which might reveal some task that I can't attend to right away).

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[1] https://terrytao.wordpress.com/career-advice/

[2] http://matt.might.net/articles/productivity-tips-hints-hacks-tricks-for-grad-students-academics/

Focus. I turn off most mobile notifications and set my phone to "do not disturb." I stay off social media when working, and (worth emphasizing again) I don't check email as a distraction (new work will manifest, and if I can't dedicate 10–20 minutes to process, then this lingers and distracts). Any emails related to a joint project are printed to pdf and put in a folder related to that project as they arrive so that I don't need to check email when working.

Automate. I coordinate our weekly Algebra and Number Theory research seminar. For each outside speaker, I send 5–6 emails (announcing the seminar, requesting that the staff make and post flyers, processing reimbursement, etc.). The emails are basically the same every week, with a few variables; I have a bash script that writes the emails for me.

Saying no. Initially I accepted every reasonable referee request. Eventually, several senior colleagues explained that they turn down many requests. Good citizens seem to referee roughly three papers for each paper they submit, and I try to stick to that (even if the paper looks interesting and I'm an appropriate referee).

It's difficult to say no, and psychologically, I needed "permission" to start declining requests. It was helpful that my department's service expectations were clear and direct. Similarly, I found writing for *Mathematical Reviews* stressful and difficult but organizing conferences enjoyable and natural; these days I do more of the latter.

Efficiency. I could fill another article with habits and routines that create and protect time.

I bike to work: it takes about 25 minutes, compared to 35–40 to drive and park. Our department has a shower on my floor. Cycling doubles as cardio and boosts my mood and mental health.

Each semester I poll students to find a time that accommodates everyone who might possibly attend office hours. I reserve a classroom for office hours. Students can show up even if they don't have focused questions, and I can leave immediately when finished. (In any case I can't fit more than 3–4 people in my office.)

I scan my lecture notes after each class; I include the date, lecture number, and course number in the filename, and keep a terse outline of what I covered each lecture. Teaching a course a second (or ninth…) time is a breeze, and this type of organization creates time and space to focus on improving the course. And if I'm stuck somewhere (e.g., delayed flight), I can access the notes via Dropbox and use that time for review and preparation.

In fact, I scan everything; my office is across from the printer/scanner, and Dropbox has a useful mobile app (if I have a meal receipt that needs to be reimbursed, I scan it immediately). If I give a chalkboard talk, I scan the notes (and put the scan somewhere easy to find again).

Discuss! I've had countless conversations about these topics (at tea, conference dinners, in hallways) and have benefited greatly. Our profession tends to pile on extra work with little guidance, and reaching out to experienced colleagues can be productive and therapeutic.

David Zureick-Brown

Credits

Author photo is courtesy of Sarah Zureick-Brown.

How to Read a Research Paper

Matt Baker

Before attempting to read a research paper, I recommend first deciding *why* you want to read it, what you hope to get out of the paper, and how much time you're willing to commit. Then place the paper into one of the following three categories:

- **Speed Read:** A paper whose introduction you plan to read in order to get an overview of the results and then possibly skim further.
- **Substantial Skim:** A paper that you plan to skim all the way through, perhaps reading certain parts in detail.
- **Deep Dive:** A paper that you wish to thoroughly study and understand.

It's useful to have different categories because there's *so* much interesting math research produced every day, and it's impossible to keep up with everything. I go through the arXiv preprint listings in three different categories almost religiously every single morning. I get email notifications for all new postings and revisions in these categories, and I make an effort most days to "speed read" at least one new paper while drinking my morning coffee. I also bookmark papers to come back to later (although to be honest, I end up not having time to come back to many of these). Skimming through the arXiv abstracts in the daily digest and then speed reading at least one paper a day keeps me feeling in touch with what's happening in the fields I'm most interested in.

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