

# EARLY CAREER

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 On the Path to Becoming a Mathematician: Perspectives from *Living Proof*.



## Jobs in Academia

### Preparing for the Tenure-Track Job Market

*Andrew Obus*

The tenure-track job search is one of the most important and nerve-racking times of your academic career, and it can be helpful to have advice from people who have searched recently. What I write below is from my perspective of

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having been on the tenure-track job market four times in the last decade, with two successful searches. Furthermore, while I have not officially served on a tenure-track hiring committee, I have participated in many formal and informal faculty meetings where job candidates were discussed and debated. That being said, my experience is limited to the tenure-track job market in mathematics in North America, and some of the advice below might not transfer to the rest of the world, or to jobs in statistics!

#### Is This My Year?

The first step in preparing for the tenure-track job market is deciding if you actually want to apply. If you are a graduating PhD student, then it is certainly possible to apply to tenure-track jobs, especially if you are mainly interested in smaller schools. But keep in mind that unless you are a truly exceptional case, most PhD-granting institutions (as well as an increasing number of research-focused non-PhD-granting institutions) will not consider your application seriously until after you have some postdoctoral experience. If these are the institutions that interest you, you probably do not want to bother sending them tenure-track applications while you are still in graduate school. The rest of this column assumes that you are already in a post-PhD academic position.

Of course, if it's your last year of a postdoc and you want to remain in academia, then you will be applying. But even if you have another year left, it may be worth it to do a selective application process to a few particularly appealing schools. This gives you an extra chance at landing a great job, and even if you are not hired, it gives you a jump start on getting your job materials ready for a wider search the next year. There is a tradeoff—preparing job applications takes time! But overall, the benefits will often outweigh the drawbacks. If you have a fancy postdoc, many (but not all) departments will even let you defer your start date for a tenure-track position for a year while you finish. Think about it from their perspective—they want you there, and you may be at their institution for thirty years or more. The sacrifice of waiting a year for you to come is comparatively minor.

#### Where Should I Apply?

Probably to a lot of places, including a number that do not terribly excite you. The marginal cost of sending out one more application is not very high. My advice is to ask yourself the question, "If this were the only job I was offered, is there a reasonable chance I would take it?" Only

if the answer is “no” would I recommend against applying. You don’t have to be *sure* you would take the job, and in any case you may not have enough information about the position to know what you would do. Keep in mind that a tenure-track position is not a lifetime commitment, but you are likely to spend more time there than in your current position.

### When Should I Assemble My Application?

The good news about going on the tenure-track market is that you have already been through the job application process at least once, and the job materials are pretty much the same this time around. Most jobs will require a cover letter, CV, research statement, teaching statement, letters of reference, and occasionally a statement addressing diversity or inclusion.

Nowadays, some of these positions are posted *very early* on MathJobs.Org. I have seen positions advertised as early as May, although I have yet to see an application deadline earlier than October. Virtually every North American tenure-track position posts a job advertisement on MathJobs, but an increasing number require your application to be submitted some other way. Some sort of spreadsheet is essential for organizing your job applications, keeping track of deadlines and submission procedures, and making sure you don’t forget to submit. You should start building the spreadsheet during the summer, which is also a good time to begin writing your research, teaching, and diversity statements. You also want to think about who is going to write your letters of recommendation, and to give them *at least* a month’s notice. Ideally, along with your request for a letter, you will give the recommender your completed job application statements. If applications are due in October, this means your statements should be finished in September. This comes up fast! Remember that you can still update your statements after this time.

If you are applying to 80–100 jobs, then writing cover letters will be time consuming. To lessen the pain, it can be a good idea to write your cover letter for a job as soon as you see the advertisement. Once you’ve written one for each type of position, the rest will be quick.

### What Can I Do to Be a Stronger Applicant?

It is unfortunately not unusual for a tenure-track position to have more than 500 applicants. Every application will be looked at, but many applications may not get the time and attention they deserve. How can you make sure that yours is not ruled out? Giving serious advice on how to be a better researcher, teacher, networker, or statement writer is beyond the scope of this column, but I will mention a couple of pointers that are specific to tenure-track candidates.

First, if your school allows it, it is a great idea to apply for a grant before going on the tenure-track market. The biggie here is the NSF, but there are also many smaller grants geared to young researchers such as the AMS-Simons

Travel Grants.<sup>1</sup> Having a grant on your CV (and mentioned in your cover letter!) is a great way to get noticed, and even if you don’t get a grant, the act of having applied for one will make it much easier to write your research statement.

Second, for most departments, even research-focused ones, a good teaching record will be important to your case, usually more so than it would be for a postdoc. If your teaching record is lackluster, or if you have no experience at all, a hiring committee may worry about you being a long-term teaching liability. In light of this, if you are in a nonteaching position and were also never an instructor of record previously, you may want to search out an opportunity to gain teaching experience that shows independence and leadership, even if it is not an “official” class. Can you give a lecture series for graduate students, run an independent study, or perhaps speak at a local high school or middle school?

### What If I Already Have a Tenure-Track Job?

There are many reasons for going on the tenure-track market when you already have a tenure-track job, even if you are happy where you are. Are you trying to solve a two-body problem? (I was!) Are you being actively recruited by a more appealing department? Do you have to go on the market because of a tenure denial? If your motivation is anything other than the latter, then your list of jobs to apply to will presumably be smaller than it was when you first went on the market, as it will consist mostly of opportunities that you might reasonably prefer to your current position.

Your cover letter is crucial in this situation, since you do not want the search committee to think that your motivation for applying is to extract a raise or other concession from your current department (even if it is)! When I was looking to move tenure-track jobs, I put my two-body problem front and center in my cover letter. This was a relatively easy decision for me, since my significant other is not an academic, and no school I was applying to would have had to do anything to accommodate her. On the other hand, if your significant other is also applying for a job at the same school, there may be reasons to wait until later in the process to broach this topic. Even so, it’s a good idea to include a credible statement in your cover letter about why you want to move if you can. This is even more important if the department you are applying to is generally viewed as less prestigious than your current department—they may wonder why you are applying and it’s good to have an answer!

Another important thing to consider if you already have a tenure-track job is how open you want to be about your search. For various reasons, you may not want your current

<sup>1</sup>For a great blog post on why it’s a good idea to apply for grants, even if you don’t get them, see <https://blogs.ams.org/phdp1us/2015/10/05/strike-one-for-the-pi/>.

department to know that you are on the job market. This can complicate your search in several ways. First of all, you may not feel comfortable asking for letters of recommendation from your department, which can rule out some of your best potential letter writers (especially for a teaching letter)! You should think over the summer about if there is someone in your department who will write for you and can keep a secret. Even if it's just a "citizenship" letter, it can be helpful to assuage the worst fears a hiring committee might have about why you are leaving. You do need a teaching letter, though, and in the worst case scenario you can ask whoever wrote for you for your current position to resubmit the letter. If you have no letters from your department, then definitely mention in your cover letter that you are keeping your search secret and for that reason you have not solicited any. This is also helpful to reduce the risk of someone who sees your application accidentally spilling the beans about the fact that you're on the job market.

Overall, don't worry too much—people switch tenure-track jobs all the time, and you will not be blacklisted in the mathematics community or in any sensible department for attempting to do so.

Good luck in your search!



Andrew Obus

#### Credits

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## Preparing for a Career at a Liberal Arts College

### Julianna Tymoczko

I was asked how to prepare for a career at a liberal arts college. I want to start with disclaimers. First, I'm just giving my own perspective—I speak neither on behalf of Smith College nor on behalf of comparable liberal arts colleges around the country.

Second, there are a lot of different types of liberal arts colleges. Most faculty who thrive at places like Smith,

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Williams, Oberlin, Harvey Mudd, Mount Holyoke, etc., could be at R1 schools. However, there's a wide range in the amount of scholarship liberal arts colleges expect, and you should adjust my advice if you want a position at a different kind of liberal arts school. I find it useful to consider the baseline expectation to be that faculty teach four or five courses *per semester*. Academic institutions with research expectations reduce your teaching accordingly. For instance, a teaching load of two courses per semester means you're expected to spend about half your time on research. (To me, it seems most institutions expect service but have few metrics or incentives for performance or lack thereof.)

Finally, while the bulk of our work is with undergraduates, there is a substantial amount of postgraduate work at many of the strongest liberal arts colleges in the country, including a PhD program in math at Wesleyan, a combined BA/MA option as well as a PhD program at Bryn Mawr, and the postbaccalaureate program at Smith (which admits women who have completed an undergraduate degree and want to continue to graduate school but are not adequately prepared). A much larger group of liberal arts schools offers faculty the opportunity to supervise PhD candidates at an affiliated university. We also generally send a higher percentage of our graduates to STEM PhD programs than research universities, and this is a valued part of our institutional mission.

I'm going to give my advice backwards, starting where you'd like to end up (assessed favorably in your application) and moving back in time through a postdoc and to grad school.

#### The Application

Schools like Smith get around 800 applications for each tenure-track job. There are tons of highly qualified candidates. My list of features that help an application stand out overlaps with advice from a recent panel discussion printed in the *Notices* [1], but is specifically geared towards applications to schools with high research expectations.

#### Research Statement

We want this to be well thought out, giving a clear indication of future work (and why it matters) in the context of a track record of past work. We also want it to be independent, in the sense that the work could occur without our active supervision. In part, this is practical: liberal arts math departments are pretty small, and you likely won't have colleagues in your field at your school. Many liberal arts colleges are in rural locations where you may not even have colleagues in your field within an hour's drive.

As a corollary, your research statement is being read by mathematicians outside of your field. On the first page, give us a bird's-eye view of why anyone should be interested in your field: how does it connect to other parts of math? what are its main questions? where does your research fit into this big picture? (This is good advice for any job applicant, honestly.)