Some information about applying for jobs and writing the thesis

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0.1 What is this?

When I started getting ready to finish my PhD this year, I had no idea about the job application or thesis writing processes, and suddenly I had a lot of information coming at me from all directions. I figured I’d write some of it down, in case it was useful for anyone else the next year or after. My job search was aimed at finding a post-doc position, but some of the information is relevant even if you have different goals.

So, for what it’s worth:
Chapter 1

Applying for Jobs

1.1 The NSF application

The application process is Sept-Nov. The earliest deadline is the NSF fellowship deadline. There’s a very nice fellowship called “Mathematical Sciences Postdoctoral Research Fellowship” (MSPRF). See the NSF website for deadline and information. The application is done online via Fastlane. You write a “project description” which is like a thesis summary, but specialized a bit to the NSF (and limited to 5 pages). You apply with a “sponsor,” a professor somewhere w/whom you’d like to work, and he/she has to write a sponsor statement saying that they’d be available and what you’d work on. So one of the earliest processes to go through is choosing a candidate sponsor and getting in touch with them. NSF is picky about 10 pt font and 1 inch margins. You also need to have letters of reference and transcripts sent. It is common but not required (as of 2004, anyway) to pick a sponsor in the US.

There are other NSF fellowships which may be of interest, such as the “International Research Fellowship Program” if you know someone abroad with whom you’d like to work. Another international NSF fellowship is called the Distinguished something or other. You can search on that.

I recently heard of the Human Frontier Science Program (www.hfsp.org), a postdoctoral fellowship for training abroad, which sounded quite nice and may be of interest to some people.
1.2 The job hunt

Then you want to decide where to apply. SIAM and AMS have nice websites listing job opportunities. The tenure-track jobs typically have earlier deadlines. I was applying mainly for post-docs. The earliest deadline was 15 November. Most are in December, some in January. I made my list of places to apply based on postings on those two websites, searching around on the web, and talking to my advisors and other folks. You can always send your materials to places that aren’t advertising, but if they are advertising, you want to know the specifics of their application process, address to use, etc.

1.3 The application package

1.3.1 Your materials

I mailed out packets with

- Cover letter
- AMS cover sheet (download from AMS. required for several places, so you might as well send it everywhere. the latex version is nice)
- CV
- Thesis summary (about 5-10 page document presenting your thesis work. Of course, that’s still in progress, but you give the overview and details on the parts that are ready. It’s nice to give short blurbs on your topics up front, for the reader who’s just skimming. Then give more detail and exposition in the next section, for the reader who wants to know more. References follow at the end and give a snapshot of who you are and what kinds of things you do and read, for the reader who has skipped to the back. You can get a sample thesis summary from your advisor or whomever.)
- Future directions of research (sometimes it’s convenient to discuss some of this in your thesis summary. some places require a separate document, so I wrote a one page thing that lifted the main “future directions” from my thesis summary, giving a synopsis.)
- Teaching statement (discuss experience and philosophy)
1.3.2 Personal contact

For places that you’re really interested in, it can be helpful (I think...) to send your CV and summary directly to someone in the department. You can write a short, personal cover letter.

1.3.3 Materials from other people

Most jobs require three or four references, one of which discusses your teaching. The teaching letter comes from the current faculty in charge of teaching. (This is the default, anyway. You can ask a different faculty member if they know your teaching from having worked w/you or something.) For everyone writing you a letter, you give them all the labels and they send it. Some people want just the labels; some want labelled envelopes. (You can get the NYU-letterhead envelopes from Larry in that case.)

1.3.4 The labels

I found it very convenient to use Word’s built in label function to type up the labels. I used Avery Laser labels, model 5260, which are 1 inch by 2 5/8 inch address labels, 30 per sheet. The addresses should be specific. If they’re not advertising and you don’t know to whose attention to send it, send it to Chair, Mathematics Department. Or to whatever department you’re submitting.

1.3.5 Other

- It can be a good idea to put your CV and any other materials (publications?) on the web.

- There’s an electronic system of applications (used to be via Duke, now through AMS at www.mathjobs.org) that some places use. Some require you to use it.

- Extra application forms: some schools or institutes have their own forms you need to submit via the web or by mail.

- Institutes: there are mathematical institutes that have “special years” whose themes you might want to check out to see if you’re interested.
Some institutes are the IMA, MBI, MSRI, etc. Their applications are sometimes slightly different than the universities (like they require a statement explaining why you want to take part). These positions may not require teaching.

- Note that some schools have separate Mathematics and Applied Mathematics departments.

- Length of position: At first, I thought two year positions were ideal. After seeing how time and energy consuming the application process can be, three year positions started sounding much better, so that one has two years to adjust to and begin working in the new place before applying again. After all, if you go to a post-doc, you will probably want someone there to get to know you enough to write you a letter the fall of the year in which you apply for your next job.

- There are other items of interest related to post-doc positions which hadn’t occured to me before. They probably wouldn’t make or break a decision in the end, but perhaps it’s worth being aware of “extras” like opportunity to get involved with graduate education (such as via the summer program at IPAM at UCLA), policy regarding travel funding, employer contributions to retirement plans, etc.

### 1.4 After you’ve applied

- Several places were missing a letter or two, which I had re-sent. Whether and what places communicate regarding their receipt of your application varies; you may want to check on your favorites.

- The process varies. Some places make offers straight off. Some do phone interviews. Some do in-person interviews. Some offer to fly you out for a visit. Some don’t. If you get contacted either with an offer or because you’re on the short-list, it’s common for them to ask you if you’re still interested, whether you applied for the NSF and with whom, where else you have offers from, etc.

- Most universities stick to a uniform deadline for responses to “first-round offers” which is something like the second Monday in February, after the first NSF awards have been announced. Of course, if you
know for sure that you want to decline an offer before then, the sooner the better so that they can make the offer to someone else.
Chapter 2

The Thesis

Collected some practical information and advice on this. For what it’s worth:

- There are various “skeleton tex” files being handed down from generation to generation of students which make it easy to get started, on some level. (One example is available from the Grad Student Resources Page.) It sets up the formatting and gives you a sample bibtex format, etc...

- Seems there are two main routes: have written a few articles and largely compile them into the thesis, or not have written any and write the thesis so it will be easy to then extract and submit articles afterwards. I followed route B. It was helpful to keep the idea of future articles (and their audience) in mind as I started to write.

- One annoying headache is going back to proofread a document in which you’ve switched notation. For example, if half the time you talk about $\mathbb{R}^n$ and the other half, $\mathbb{R}^d$.

- The degree is given in May or September. The defense can be any time before. For instance, you can defend in June and get the September degree. The deadlines for applying and submitting a preliminary thesis are fairly early. The preliminary thesis is mainly checked to see that you’ve got your margins correct and that kind of thing. There’s a big packet of material that you pick up at 1/2 Fifth Avenue that explains the formatting and other logistics.
• Your committee is five people, three readers and two non-readers. You can have a non-NYU person on your committee, but it requires a bit of extra paperwork. They need to have a PhD, and you need to give their CV to Tamar.

• If you want to graduate in May and miss the application deadline (as can happen...), you can either go to 1/2 Fifth Ave who will send you to 25 West Fourth who will tell you to call Mary Roldan, or you can call Mary directly at 998-4866.

• You have to submit a copy of your thesis in a binder to the school. They are special black binders which come in small, medium, and large, and can be bought for about $20 at the bookstore. Sometimes there are some free extra binders at 1/2 Fifth Ave that they’ll let you have, if you know the size of your thesis.

• You reserve the room for your defense.

• For preparing the defense (and other talks), I really like Texpoint, which is an add-in for Power Point which allows you to make PP presentations with lots of Latex in them. It’s a free download from Berkeley CS dept, http://raw.cs.berkeley.edu/texpoint

• The required paperwork includes two extra copies of the abstract and the title page. Everyone tells you this. I didn’t realize till the last minute that this meant two copies for Tamar AND two copies for 1/2 Fifth Ave. You know what that means. Four copies.

• When it’s all over, you probably want to generate a final pdf file which is identical to your submitted thesis, but single-spaced and perhaps with slightly smaller margins. You need to give a copy to Tamar and one to the Courant library. (Neither needs to be bound or anything. The library sends it to the bindery, and Tamar sticks it in your file.)