What to expect for your final year at UO

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The following represents advice and experience for the final year in the UO math department. Your experience will be different but we hope that some of these subjects help make it easier or easier to prepare for.

1   Types of jobs

Step 1. Decide on the types of jobs you want.

1. **Post-docs.** These come in many flavors these days. You find them all over but most are highly competitive.

    (a) **"Old world" post-doc.** Pure research at a wealthy institution working with elite in your field. Most of these positions are listed with names of famous mathematicians in your area. These rarely use the work "post-doc" in the title.

    Usually well paid and highly selective.

    Examples: Institute for Advanced Study, Princeton, MIT, Yale, U. of Chicago.

    2-3-5 year positions.

    These are not always clearly advertised and may require that you visit individual institution websites.

    (b) **"New world" post-doc.** Low teaching load (1-2 entry level classes a term, similar to GTF), emphasis on research, working with elite in your field. These positions are named after famous mathematicians from those institutions which may mean you don't know who they are (but you should find out before applying).

    Usually paid at the lowest end of the professional faculty at that institution.

    Examples: most state universities. The larger the state, the better the post. UC schools are at the top of this pile.

    1-3 year positions.

    (c) **"Teaching" post-docs.** Mostly teaching but higher level math classes and with the intension of showcasing your incredible teaching

skills. Most titles include "teaching" along with the name of a famous faculty member known for their teaching.

Usually well paid for a similar teaching position. You should have very strong teaching credentials to apply for these.

Examples: large state schools and well-endowed private 4 year colleges.

2-3 year positions.

(d) **"Self-funded" post-docs.** This is a rare but emerging post-doc option where you bring your own funding to the institution of your choice. The most common option here is an NSF post-doc.

Apply for all NSF post-docs by mid July!

This is not the same a s grant from NSF but the process is very similar. You must write a proposal of the research you wish to do and find an institution with a faculty member willing to host you. The funding comes from NSF so the faculty member does not need to come up with money, just be willing to work with you.

A good grant is hard to write and your advisor must help you or there is no point. Also, the better the host institute the better your chances.

1-2 years.

(e) **"International" post-docs.** Commonly a pure research position. Funding varies wildly. Often not associated with any teaching.

Examples: many in England, other European if the language is not a problem. Australia and Canada are also popular.

1-2 years.

(f) **"Faux-doc" post-docs.** Mostly teaching but with a title. In contrast to the previous post-doc types, these post-docs often include the word "post-doc" in the title.

Usually low paid or paid reasonably but comparable to similar pay for a 1-2 year teaching-only position.

Examples: many private 4 year colleges and smaller state schools.

1-2 year positions.

2. **Teaching-only jobs.**

(a) **Tenure-track.** Expectation to teach all levels of undergraduate math. Usually a research component is required along side.

Usual pay low end of professional faculty, negotiable at times.

Examples: for most fresh Ph.D's, only sensible at this stage to apply for the smaller state universities and private 4 year colleges. Most academic job postings are of this kind. **You can apply but expect to be competing with many people with 1-2 years of experience after Ph.D.**

Full-time employment.

(b) **Non-tenure-track.** Expectation to teach mid-lower levels of undergrad math. No research required. Ideally someone on faculty is remotely in your area.

Usual pay low end of professional faculty at that institute. Non-negotiable and time frame non-negotiable.

Examples: almost every academic institution has 1 or more of these posted each year. Your competition is mostly fresh Ph.D.s.

1-2 years.

(c) **Visiting.** Expectation to teach mid level undergrad math, but at a very low load.

Commonly by invitation or by knowing someone with grant money willing to sponsor you. Your competition are others in your area. Most of the time these positions go to faculty members of other institutions who are on sabatical.

Pay? Depends on funding.

Examples: random. Common when faculty member leaves on sabatical.

1 year.

(d) **Temporary/term-to-term.** Completely teaching at a high load.

Pay usually lower end.

Easier to get than all other jobs and a final standby if things go south. Not good for research though.

Exmaples: community colleges and large state schools with large teaching requirements.

1 year, renewable.

3. **Government jobs.** Few here seem to be aware or interested in these but some of the jobs are surprising and they do represent the overall largest single employers of mathematicians so there is a room here.

(a) **Defense.** Research in applied math. Applied in that setting is very broad, so not just analysis.

Requires US citizenship and security clearance, **so start these applications in August!**

Recruiter available at Joint Meeting.

Pay is very high, 80,000+ starting salaries with perks and relocation.

Examples: NSA (largest), CCR, other DOD posts, Las Alamos.

(b) **Aerospace.**

Examples: JPL, NASA, Los Alamos.

(c) **Departments, etc.**

Examples: Post office, National Institutes of Health, etc. Here applied math is desired.

4. **Corporate jobs.** Also overlooked by UO people but a definite step up in pay as well as offering more local job options.

   (a) **"New world" think tanks.** Industrial applications are now mostly high-tech which means no longer is it PDE's, stats, and actuarial sciences alone, but also employes all manner of algebra and discrete maths.

   Pay is very high for your skill set: 80,000 starting salaries.

   Examples: Microsoft Research Labs (Seattle/London), Google (OR, WA, CA), Intel Architecture Labs (Portland), Lucent.

   These jobs are all research, though unlike a post-doc, not usually in an area completely of your choice.

   * Many of these offer summer employment or sabatical hires, so don't loose sight of them if choose to go into academia.

   (b) **Traditional corporate.** Still many tradiational uses for math in companies. These are the more stats and large data management type jobs. Also important are the bio-maths which are very well funded.

   These jobs earn the highest overall for mathematicians.

   Examples: Texas Instruments, book publishers, other companies, bio-science companies such as drug companies, etc.

2   Find your deadlines!

Step 2. Find your deadlines. You will miss some but key ones to remember:

1. When to submit an abstract for a talk at your conferences. For Joint Math Meeting, deadlines are as early as July for some sections.

2. Get a professor/superviser to observe your teaching. **Ask that they write the letter at the same time.** It happens that the observation notes get lost and this leads to much stress at the last moment.

3. Registering for conferences.

4. Booking cheap flights and stays at conferences.

5. When to apply for your top 5 jobs – usually Nov-Dec deadlines.

6. If you want to double up teaching, do so in Fall to have winter free to travel to interviews, or be prepared to cover classes for someone who will return the favor when you need it.

3 Advanced planning.

Step 3. Start in early summer.

1. Write a good draft of teaching and research statement. Leave them alone and come back to them in Fall. These usually will not need to be personalized for individual applications.

2. If possible, submit something for publication. If not possible, start writing something you hope will be submitted by the end of December.

3. Save some funds for travel for job conference etc. Or try to apply for funds.

4 Where to look for jobs

Step 4. Start to look for jobs.

Mostly websites but there is no single website with all that you need. Also, **don't overlook the printed sources.**

1. `www.ams.org` has links to all the major job sites for math as well as it **own** job list.

2. `www.mathjobs.org` is a good list of jobs and allows you to apply on-line. **BEWARE: most jobs are not posted here and it is not enough to look at their list.** Also, although you can update your applications at any time on this site, some departments will have already printed your file or reviewed your application and so it is worthwhile e-mailing them with word that your application has changed.

3. `www.usa.gov` for a list of government jobs. May link you to other websites for details. Also consider visiting `www.nsf.gov`, `www.nasa.gov`, `www.nsa.gov`, etc.

4. For private companies, check their websites and also check the employers list for the Jan. Joint Meeting. Most companies will advertize there.

5. **Read your Bulletin.** There are jobs listed in the bulletin along with key deadlines to apply. This is where things like NSF post-docs etc are hidden and so they go unnoticed by those who simply look at websites. In the fall two key issues of the Bulletin come out, one with jobs, one with conferences in your area (geographically and mathematically.) You need to review both of these.

5 Interviews.

Post-docs rarely have interviews. Meeting people at conferences serves that role. Also, a good connection with advisors helps.

In general, don't apply to post-docs that don't sound very close to your area. Spend the time on your other applications and improving your research credentials by firing off a publication before Jan's post-doc decissions.