

# Applying for academic jobs in North America

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## Before we begin...

- ▶ It's not for you if:
  - ▶ you don't really like math;
  - ▶ you don't really want an academic job;
  - ▶ you want employment stability anytime soon;
  - ▶ you don't want to wait until your thirties to find out if you need to change career paths.
  
- ▶ This talk: advice how to prepare a good application.
  - ▶ A bad candidate that follows all the steps may not get a job.
  - ▶ A good candidate that ignores everything may do really well.
  - ▶ The postdoc market makes mistakes.
  
- ▶ This talk: what's out there.
  - ▶ Focus on big picture, some simplifications.
  - ▶ Ask questions if you want the details.
  
- ▶ Nobody really knows how to apply...

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**The North American model**

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## Types of schools

- ▶ **universities:** research + teaching institutions with graduate programs (teaching load: 2–4 courses/year);  
*Duties:* research, teaching, service, PhD supervision.
  
- ▶ **liberal arts colleges:** teaching-oriented institutions without a graduate program, but with strong students (teaching load: 4–8 courses/year);  
*Duties:* teaching, service, research, project supervision.
  
- ▶ **community colleges:** 2-year colleges offering professional degrees.  
*Duties:* TEACHING.

## Research positions

### ▶ **postdoctoral fellow**

- ▶ fixed term position (2–4 years);
- ▶ intended for new Ph.D.'s;
- ▶ often with reduced teaching load;
- ▶ still has a supervisor;
- ▶ generally doesn't supervise students.

### ▶ **assistant professor**

- ▶ tenure-track, i.e., full-time probationary position (around 6 year);
- ▶ regular teaching, reduced service;
- ▶ most privileges (except, e.g., being the department chair).

### ▶ **associate/full professor**

- ▶ tenure (= you can't be fired);
- ▶ full responsibilities and privileges;
- ▶ most schools tenure almost all of its tenure-track faculty, some of the top ones none.

## Teaching positions

### ▶ **lecturer**

- ▶ high teaching load (coordinating, 3+ courses, etc.);
- ▶ relative job security (3–5 year contracts, a.k.a., soft tenure);
- ▶ possible undergraduate supervision;
- ▶ often not great salary.

### ▶ **adjunct professor**

- ▶ part-time instructorship;
- ▶ extended on the semester-by-semester basis;
- ▶ bad pay;
- ▶ intended for school's recent Ph.D.'s to give them another chance on the job market (but often abused).

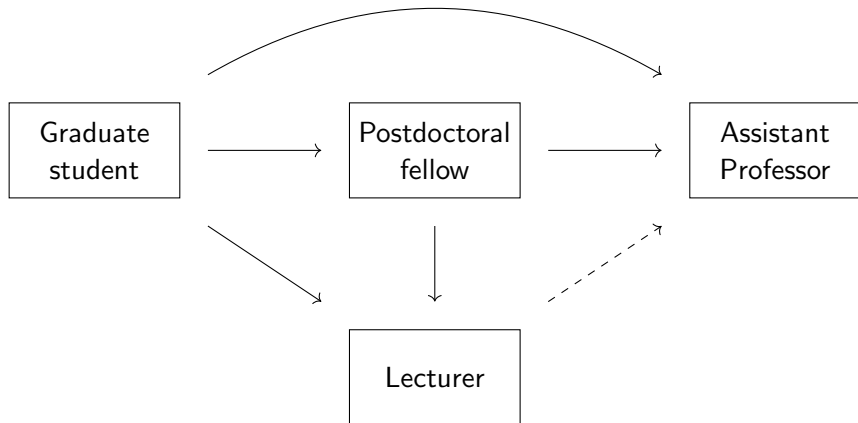
### ▶ **teaching postdoc** (uncommon)

- ▶ fixed term (1–3 years) position;
- ▶ high teaching load;
- ▶ meant to give teaching experience.

## Current trends

- ▶ Graduate programs are getting bigger.
- ▶ There are fewer full-time faculty positions.
- ▶ More lecturers and adjuncts are hired.
- ▶ Changing role of universities and colleges. Increasing tuition spent on facilities, not faculty.
- ▶ Global economic trends:
  - ▶ “full-time jobs are not for millenials”;
  - ▶ retirements of baby boomers (in math: retirement of the '90s post iron curtain hires).
- ▶ Calculus Industrial Complex.
- ▶ Increasing role of MOOCs (Massive Open Online Courses).

## Career path





## Career path, continued

- ▶ Direct transition from grad student to assistant professor at a university is extremely uncommon.
- ▶ It is more common at liberal arts colleges, provided that a student has significant teaching experience.
- ▶ For tenure-track jobs at universities, 3–5 years of postdoctoral experience are expected. Neither less nor more is desirable.
- ▶ The dashed arrow indicates that a lecturer can get a tenure-track job at a liberal arts college.
- ▶ In rare cases, it is possible to go directly from a postdoc to an associate professor.

- ▶ MathJobs.org is an automated job application system operated by the American Mathematical Society.
- ▶ In my experience, 90%+ of schools in North America are using MathJobs.org to process their applications, including all major ones.
- ▶ All North American schools advertise their positions on MathJobs.org. As do many schools from around the world.
- ▶ MathJobs.org lets you store your materials, including reference letters. This means that your letter writers only need to upload one letter and you can use it for multiple applications.

### About MathJobs.Org

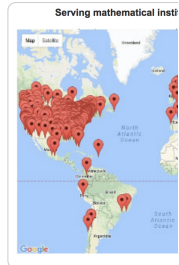
- **Introduction** -- watch this [short intro. video](#) (pay no attention to the old pricing mentioned there.)
- **Workflow & Features**
- **Overview of Services for Employers**
- **What does it cost?**
- **User Documentation**
- **Demo server** -- try it out!

### Login to MathJobs.Org

- ...as **Job Applicant** ( ...create a new account )
- ...as **Writer of reference letters**
- ...as **Faculty or staff at employer institutions**

### Upcoming Deadlines, Closing Dates (more...)

- **University of Delaware, Mathematical Sciences**  
[TAP] Temporary Assistant Professor/Instructor (2018/08/21) Apply
- **Quantitative Scientific Solutions, LLC,**



## Job Listings

[sort alphabetically] [by postdate] [by enddate] [by deadline] [by startdate] [by distance] [by types] [by country/state] [show map]



Find by ID# or keywords   all?

United States:

Michigan (9)

### Mathematics and Computer Science, Alma College

1. [VAP] Mathematics, Visiting Assistant Professor (deadline 2018/05/22, Michigan, US) [Apply](#)

### University of Michigan

1. [FELLOW] LSA Collegiate Fellow - University of Michigan (Michigan, US)

### Mathematics, University of Michigan

1. [POSTDOC1819] Mathematics, Postdoctoral Assistant Professor/Byrne Research Assistant Professor/D.J. Lewis Research Assistant Professor (Michigan, US) [Apply](#)
2. [PROFALAN1819] Algebra, Analysis, Assistant/Associate/Professor (Analysis, Algebra) (Michigan, US) [Apply](#)
3. [PROFFIN1819] Financial, Assistant/Associate/Professor (Financial) (Michigan, US) [Apply](#)

### Lyman Briggs College, Michigan State University

1. [FACULTY] mathematics, statistics, Faculty Position In Mathematics at Michigan State University (Michigan, US)

### Mathematics, Michigan State University

1. [AP2018] mathematical molecular biophysics and biology, Assistant Professor (Michigan, US) [Apply](#)
2. [CSAS18] Mathematics, Mathematics Education, Continuing System Academic Specialist (Michigan, US) [Apply](#)

### Department of Mathematics and Statistics, Oakland University

1. [VAP] Mathematics, Visiting Assistant Professor (Michigan, US)

(9 positions listed)

## Mathematics, Michigan State University

**Position ID:** MSU-AP2018 [#12110]

**Position Title:** Assistant Professor

**Position Type:** Non tenure-track faculty

**Position Location:** East Lansing, Michigan 48824, United States [map]

**Subject Area:** mathematical molecular biophysics and biology

**Application Deadline:** (posted 2018/07/06, listed until 2018/10/08)

**Position Description:** Apply

The Department of Mathematics at Michigan State University (MSU) invites applications for a three-year, fixed term assistant professor position. This position begins August 16, 2018, and will be renewed yearly subject to performance and funding availability. The successful candidate will teach two courses per academic year and conduct research in mathematical molecular biophysics and biology in conjunction with Prof. Guowei Wei's research group. A Ph.D. in mathematics, quantitative biology, or a related field is required. Demonstrated excellence in mathematics instruction, strong expertise in machine learning/deep learning and computer-aided drug design, and a commitment to work with pharmaceutical companies is expected. The position offers exciting opportunities for individuals interested in teaching, research, external funding application, and graduate/undergraduate student interaction within the environment of a Big10 university. Application should submit the following materials through the MathJobs in support of their application: 1. Cover letter explaining the applicant's interest in and fit with the advertised position 2. Curriculum Vitae 3. Statement on teaching philosophy 4. Three reference letters (to be submitted by the reference writers at MathJobs). At least one of them should address the applicant's teaching experience.

The review of applications will begin on July 15, 2018 and the search will remain active until the position is filled. Questions regarding this position may be directed to the search committee chair, Prof. Guowei Wei, at [weig@msu.edu](mailto:weig@msu.edu).

The Department of Mathematics cultivates a vibrant, multi-disciplinary community that is diverse along many dimensions, including race and ethnicity; gender, sexual orientation, and gender identity and expression; ability status; and creed or ideology. MSU is an affirmative-action, equal-opportunity employer. MSU is committed to achieving excellence through a diverse workforce and inclusive culture that encourages all people to reach their full potential. The University actively encourages applications and/or nominations of women, persons of color, veterans, and persons with disabilities, and supports spouse/partner hires.

### Application Materials Required:

**Submit the following items online at this website to complete your application:**

- Cover Letter
- Curriculum Vitae
- Research Statement
- Teaching Statement
- Four Reference Letters (to be submitted by the reference writers at this site [🔗](#))

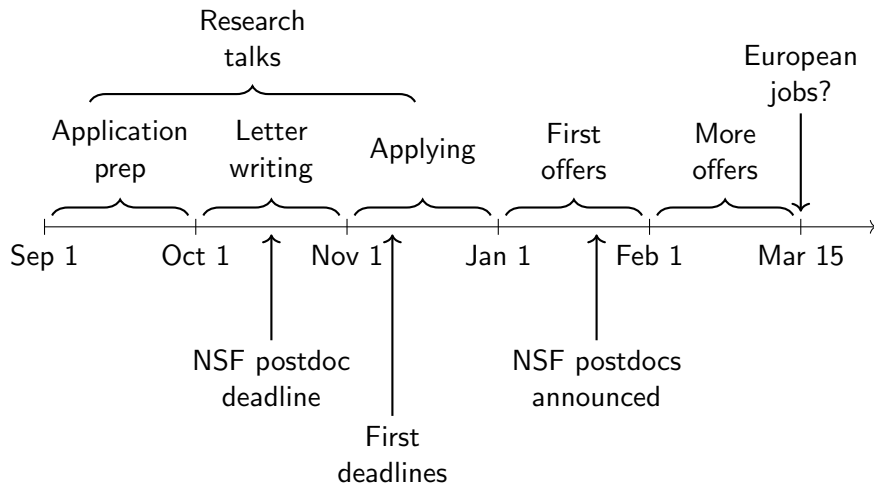
**And anything else requested in the position description.**

## Application package

- ▶ **cover letter** (1 per school), the summary of your application;
- ▶ **curriculum vitae** (1);
- ▶ **research statement** (1), the summary of your research and future plans;
- ▶ **teaching statement** (1), your teaching experience and philosophy;
- ▶ **reference letters** (4–8) regarding your research and teaching;
- ▶ various other things.

- ▶ Baylor University in Waco, TX:  
*A complete application includes [...] and a short statement of support for Baylor's Christian mission indicating your religious affiliation.*
- ▶ Ohio Valley University in Vienna, WV:  
*Requirements: [...] • Qualified applicant must be a practicing Christian who is willing to attend chapel services regularly.*
- ▶ Carleton University in Ottawa, ON:  
*Application instructions: Applications should include a cover letter, curriculum vitae, up to four sample publications, and a teaching dossier. These should be sent electronically in one single PDF file to algebra-hiring@math.carleton.ca.*

## Timeline (postdocs)





## Generalities

- ▶ Hiring is a 2-step process:
  1. one faculty member must really want you;
  2. they need to convince others that you're good.
  
- ▶ It's a lottery
  - ▶ get 0 offers one year, 10 offers the next;
  - ▶ if you can get an extra year, it's worth it.
  
- ▶ Apply broadly
  - ▶ anywhere you'd be willing to go;
  - ▶ even if the match isn't perfect;
  - ▶ for me, it was 100+ places.

## What am I looking for in an application?

- ▶ Can we collaborate?
- ▶ Can we discuss ideas?
- ▶ Can we run seminars together?
- ▶ Can I learn something from you?
- ▶ Are you a good fit for the department?

Your application should convince me that the answers to all these questions is YES.

## Curriculum Vitae

- ▶ Outline
  - ▶ Education history
  - ▶ Employment (optional, only if non-empty)
  - ▶ Publications and preprints
  - ▶ Awards/grants
  - ▶ Teaching experience
  - ▶ Service (organizing seminars, study groups, etc.)
  - ▶ Talks
  - ▶ Conference attendance (optional)
- ▶ Don't list everything! Make sure that the important stuff is not flooded with little things.
- ▶ Sell things well, but don't lie! Specifically: don't list papers "in preparation" unless you already have a few publications.
- ▶ Make sure everything can be fact-checked, e.g., papers are on the arXiv, awards are listed on the websites, etc.

## How can you improve your CV?

- ▶ Write good papers that are published in reputable journals (duh. . .).
- ▶ Be a good department citizen: organize seminars, study groups, give talks, etc.
- ▶ If your advisor organizes a conference, ask how you can help.
- ▶ If you have results, look for opportunities to give talks: research seminars at your school, research seminars at other schools, conferences, workshops, etc.
- ▶ Apply for awards, grants, scholarships, etc.

## Research statement

- ▶ Around 3–4 pages long + 1 page for each paper.
- ▶ Past and present: 80–90%; future: 10–20%.
- ▶ Hardly anyone reads past the first page. So on Page 1:
  - ▶ mention all papers (with journals, if applicable);
  - ▶ mention all collaborations;
  - ▶ mention and emphasize all *buzzwords*;
  - ▶ make your research program interesting.
- ▶ Describe your research program and present your results as part of it. State main theorems in a theorem environment.
- ▶ Keep explaining why people should care.
- ▶ Write at a level of an expert in your general area (e.g., topology, number theory), but not your specific subfield.

## Research statement — why is it hard?

- ▶ You need to have a clear view of the trajectory of your research and how it fits into your general research area. Do you?
- ▶ You need to explain it to others, showing that you're an expert, but without being patronizing.
- ▶ And there are all the restrictions from the previous slide!
- ▶ It's not something we're trained to do in grad school. . .
- ▶ Some tips:
  - ▶ take 1–2 weeks to write it (with one week to just think);
  - ▶ send it to multiple people for feedback;
  - ▶ insist on getting comments and suggestions;
  - ▶ don't get defensive.

## Teaching statement

- ▶ Make it a teaching portfolio:
  - ▶ Summary
  - ▶ Teaching experience
  - ▶ Additional training
  - ▶ Teaching philosophy
  - ▶ Teaching evaluations
  
- ▶ Informative Page 1: give bullet points with highlights.
  
- ▶ Teaching experience
  - ▶ as instructor and TA, describe responsibilities, class size, etc.;
  - ▶ teaching/mentoring Putnam prep or math club;
  - ▶ talks in learning seminars, study groups;
  - ▶ supervision (e.g., helping your advisor with undergrad projects);
  
- ▶ Additional training
  - ▶ courses on math education;
  - ▶ activities of your teaching support center.

## Teaching statement

- ▶ Teaching philosophy
  - ▶ one page;
  - ▶ state 2–3 guiding principles;
  - ▶ don't theoretize, but give specific examples.
  
- ▶ Teaching evaluations: include only numerical scores
  
- ▶ Don't give a selection of student comments
  - ▶ comments are usually meaningless (e.g., "*best prof I've had*");
  - ▶ everyone has some good comments;
  - ▶ it begs the question: are these your only good comments?



## Reference letters — summary

- ▶ The most important part of your application!
- ▶ Minimum: 3 research letters + 1 teaching reference.
- ▶ But some candidates have 6+ research letters.
- ▶ Research references from outside your school are preferred.
- ▶ Teaching reference is usually the undergraduate chair.  
Arrange class visit.
- ▶ Reference letters must be really good.
- ▶ Letter writers must enthusiastically agree to write you a letter.  
If someone says *“I’m not sure if I’m the best person. . .”*,  
don’t try to persuade them.

## Letter writers

- ▶ Your letter writer should be
  - ▶ an expert in your area;
  - ▶ familiar with your work to summarize it;
  - ▶ able to comment on its value and evaluate you;
  - ▶ someone who writes good letters.
  
- ▶ Have a shortlist
  - ▶ identify potential letter writers in fall of your penultimate year;
  - ▶ arrange meetings, seminar talks, approach them at conferences.
  
- ▶ Help them help you
  - ▶ send all your materials along with request;
  - ▶ prepare a cheat sheet (1–2 page summary in bullet points);
  - ▶ offer to meet, talk over phone, etc.
  
- ▶ Give advanced notice
  - ▶ recommended: 4 weeks;
  - ▶ minimum: 3 weeks;
  - ▶ one my letter writers said that they'll need 2 months. . .

## Cover letter

- ▶ Official application letter (use letterhead!).
- ▶ The only customized part of your application.
- ▶ Outline
  - ▶ Introduction
  - ▶ Summary of research
  - ▶ Summary of teaching
  - ▶ Other important info (e.g., service)
  - ▶ Summary of application
- ▶ For a teaching position, exchange research and teaching.
- ▶ Introduction
  - ▶ “I am applying for ...”
  - ▶ “I am currently a ...”
- ▶ Summary of research
  - ▶ state your research interests;
  - ▶ give names of potential advisors.

## After you've applied

- ▶ Let your potential supervisor know about your application.
- ▶ Can your supervisor email someone on your behalf?
- ▶ Refresh your email every 30 seconds to check for offers.
- ▶ Do it for the next 5 months.
- ▶ Realize that you have a life to get back to...
- ▶ ...and a dissertation to write.

## Look back: what can you do to become a good candidate

- ▶ Write papers, publish in reputable journals.
- ▶ Have a research program
  - ▶ come up with your own research questions;
  - ▶ seek collaborations;
  - ▶ think about the big picture.
- ▶ Have a website
  - ▶ papers;
  - ▶ talk notes, slides, videos;
  - ▶ teaching materials.
- ▶ Seek opportunities to give talks and organize events.
- ▶ Talk to senior people.

## Tenure-track application

- ▶ Tenure-track opening targets a specific area
  - ▶ to expand department's areas to specialization;
  - ▶ strengthen existing research group;
  - ▶ replace a retired colleague;
  - ▶ the ad may not mention the area!
  
- ▶ You're expected to have significant experience
  - ▶ research: numerous publications, ongoing projects;
  - ▶ teaching: classes at all levels;
  - ▶ supervision: reading courses, undergraduate projects.
  
- ▶ Timeline is a mess (some schools are done by November, others have deadlines in January).
  
- ▶ JMM/campus interviews (that's a whole separate talk).

## Conclusion

- ▶ Your school matters a lot.
- ▶ The data
  - ▶ good data is hard to find;
  - ▶ the success rate from Ph.D. to professorship is  $< 10\%$ ;
  - ▶ much higher at top schools.
- ▶ This is an exhausting process and there are many easier alternatives.
- ▶ But if you're smart, hard-working, and humble, you'll make it.