

JOB TALKS SEMINAR NOTES

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1 Seminar Notes

- **Job Market** (Academic)
 - Know what you want to do and make sure you enjoy it!
 - * Do internships and other summer programs to explore.
 - Apply early and pay close attention to deadlines.
 - If your application includes an AMS cover sheet, make sure everything fits in the boxes provided otherwise they're cut off.
 - Do your homework! (potential collaborators, faculty colleagues, etc.)
 - Check department pages and faculty for matching interests.
 - Prepare statements (be yourself).
 - * Research Statement: sacrifice generality for clarity; needs to be readable.
 - Maintain a good digital image (facebook, personal webpage, etc.)
 - Searches can be done by field and subfield. Be mindful of how specific the opening is.
 - LETTERS OF RECOMMENDATION are EXTREMELY IMPORTANT!!!
 - * Ask your advisor about the quality of your letter writers.
 - * A letter from someone outside your home institution is GREAT!
 - * Quality of letters is more important than quantity of letters.
 - Network at conferences and events so that your name is known.
 - * Make contacts through advisor and others so that you're not just applying without any previous communication.
 - Show interest and willingness to re-locate (if you are).
 - Make sure to get teaching experience prior to applying.
- **Job Interview** (Academic)
 - Do more homework! (read faculty papers and be prepared to talk about them)
 - Realize you are an expert in what you are doing and be confident!
 - * Be yourself and don't sell someone else.
 - * Be nice!
 - Visits are organized. (try to meet "potential friends")

- Dress comfortably and respectfully.
 - Do you see yourself fitting in well? Ask the Chair and Dean questions about your opportunities.
 - * The fit needs to be good for both parties.
 - * Send Thank You notes.
 - * Be interested and show it!
 - **Job Talk** (Academic)
 - * Structure
 - General slides - why this research? (everyone should understand)
 - How your research fits in the field?
 - What did you do exactly?
 - Show breadth and depth!
 - * Try to show example of application of faculty research in yours.
 - * This is a great opportunity for feedback.
 - * Practice this with friends.
 - * Be confident and quick on your feet.
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2 Testimony: Mark Veillette

Question: *What is your current position (and location) and a brief summary of responsibilities or the atmosphere?*

Answer: I’m currently a “Technical Staff” at Lincoln Laboratory in Lexington MA. I know this job title is very uninformative, and unfortunately, there are no specific job requirements to this role, and is different depending on what part of the Lab you work for. (As you or others are applying for jobs, don’t expect job requirements/tasking to be laid out bit-by-bit in a job description, you should be asking what your day-to-day is like from other people working that job when you interview, and even then it can be hard to tell.)

Having said all of that, I CAN tell you what my day-to-day is. I work on government funded research in the area of weather forecasting for aviation applications (Flight controllers need to know the weather so they tell planes where to fly). So instead of an advisor telling you what to think about, we have to tell FAA people what we think is interesting, and then they decide what of that they want us to work on, then they fund us (sometimes). We work on it, then report our findings back to them every few months.

I do a lot of image processing, statistics, data mining, and machine learning (which is not exactly what my Ph.D. was in; if you plan to leave academia, don’t expect to work on what your thesis is about). I’m constantly managing large data sets. I work a lot in MATLAB, python and C++. I’ve learned a ton about software development since starting here. I’m constantly preparing presentations and giving talks (this is my least favorite part of the job).

Example: Today I’m going to start writing a MATLAB script which will loop over two summers worth of weather data and extract a number of “features” which I’ll use to train a

classifier which will (hopefully) output probabilities of various “blockage categories” related to air traffic flow. (not every day is as fun as that :))

Question: *What did you do during your graduate program?*

Answer: I studied probability and statistics, specifically stochastic processes and stochastic integration. I worked a lot with Levy processes and the Rosenblatt distribution. My current job uses none of this directly (again, if you leave academia, don’t expect to be working on what your thesis was about, and this is okay).

Question: *How long have you known you wanted to do what you’re doing (if this is the case)?*

Answer: I decided in about the middle of my graduate career that I didn’t want to pursue the post-doc -> tenure track route that many phd students take. A lot of my reasons were personal (didn’t want to move), and also I was dissuaded by number of years it could potentially take and chance of not succeeding. So I decided I wanted to go into “industry” without really knowing what that word truly meant. (my only understanding was that it was the complement of academia)

Question: *Briefly describe the process you went through of turning thoughts/goals about your future (during graduate school) into job searching/applying during the latter years of your program.*

Answer: I can’t remember my exact thought process during this, but I did start googling around for jobs and sending emails to a few contacts about 6 months or more before graduation (some people start this a lot sooner!). I realized early on that I like writing software, and so I tried to teach myself various languages, like C++, even though it didn’t directly pertain to what I was studying. I did an internship at The Mathworks one summer which gave me some insight into what working for a company is like.

Question: *What advice would you give future students about pursuing a path similar to yours? Hopefully this can potentially include tips/advice about CV/resume/teaching statement/research statement/cover letter construction, job talks, interviews, negotiating and anything else you can think of.*

Answer: A lot to say here. I’m sure people have already heard advice on writing resumes/CVs, job searching, interviewing, etc. A few tips: (a) making a personal website is great. Post your work there, especially semi-finished papers, your CV as well as clean & documented code if you’ve written any (and make sure it works :P). (b) For people into software, learn about and make a github page to post your code. (c) I’ve gotten a few emails through Linkedin, so it’s worth making a nice page on that site.

For people going into industry, think hard about what “skills” you have learned in grad school (you’ve learned a lot besides how to grade papers, believe it or not!). Namely, you’ve learned how to perform independent research in highly technical areas, write scientific papers and give clear presentations. Also, you’ve likely collaborated with others (your advisor primarily) and have completed long term projects (your thesis!). These are the skills you should bring out

in a resume and talk about in job interviews (especially when you are talking to non-technical people in HR). In my opinion, the greatest skill you learn is how to think, and how to teach yourself new concepts quickly and with little guidance.

In a job interview, you'll probably be asked about your thesis project. I would make sure your description is a mixture of layman terms so they know what you do at a high level, as well as technical stuff so they are impressed. Finding that balance is important. Try to know who is interviewing you and tune your description to that.

3 Testimony: Elizabeth Zollinger

Question: *What is your current position (and location) and a brief summary of responsibilities or the atmosphere?*

Answer: I am an assistant professor (tenure-track) in the department of mathematics and computer science at St. Joseph's College in Brooklyn, NY. St. Joseph's is a private college that, while we have a few masters programs, is primarily an undergraduate institution. There are two campuses so technically I am part of a larger department but in practice there are only two full time mathematics faculty and there are about 1200 students on our campus. I teach 24 credits a year which ends up being 3/4 load. Research is pretty much confined to the summers and, while they are starting to change the atmosphere a bit on campus, teaching is the main source of evaluation for promotion and tenure.

Question: *What did you do during your graduate program?*

Answer: I studied celestial mechanics with Dick Hall and participated in the dynamical systems group. I started at BU directly after undergraduate at NYU and spent 6 years at BU, graduating in 2008.

Question: *How long have you known you wanted to do what you're doing (if this is the case)?*

Answer: Since at least high school I knew that I wanted to be a math professor but I did not necessarily know in what capacity. While I really enjoyed grad school and like doing research, I found that being an effective teacher was the route I wanted to take. I like working with students and getting to know the individually which is why I enjoy being at a small school. About half of my classes have 20-30 students and the other half have around 10.

Question: *Briefly describe the process you went through of turning thoughts/goals about your future (during graduate school) into job searching/applying during the latter years of your program.*

Answer: I took advantage of teaching my own classes in the summer, being a TA for good professors (evening sitting in on lectures so I could learn from their styles). Once I started at Hiram (see below) I attended Ohio Project NExT workshops and then was accepted to the National Project NExT. Either applying for tenure or looking for a new job, this program was going to be helpful.

Question: *What advice would you give future students about pursuing a path similar to yours? Hopefully this can potentially include tips/advice about CV/resume/teaching statement/research statement/cover letter construction, job talks, interviews, negotiating and anything else you can think of.*

Answer: If you can help it, try to narrow your search geographically and have a good reason for wanting to move to that part of the country. Search committees at small schools do not want to have to go through a job search every year and they want to be sure it is a “good fit”. Two common questions I got in my interviews were “why this city/state/part of the country?” and “why a small liberal arts college?”. (especially when looking at NYU and BU as where I had experience) Be prepared to answer these questions and if you don’t have an answer, maybe you shouldn’t be applying to that job. The website mathjobs.org makes it really easy to apply to jobs but that means it makes it easy for everyone else too. To the extent that is reasonable, make the cover letter as specific to the job as possible (don’t call it a University when it is a college for example). Once you know what city you are considering, do more research to see what schools are in the area. Some small schools do not use mathjobs because of the cost or because they only want to see your CV if you have found them. I found out that St. Joseph’s was hiring by looking at “employment opportunities” directly on their website.

Question: *If you’re not in your first position after graduate school can you comment on the differences and similarities between transitioning from a post-doc or some other position and from graduate school?*

Answer: My first position was at Hiram College, a small liberal arts college in Ohio. It was also tenure track and I was an assistant professor. It was a slightly lighter teaching load (3/3) and slightly higher scholarship expectation. I am from Ohio so I took the job knowing I’d be close to my family but I really missed living on the east coast, and in the city. They were right to be wary of “why Ohio?” and while my partner and I considered staying in the midwest, in the end we both really wanted to be back in the city. Once he got a good job in Manhattan, I started looking for any and everything available. I applied to some other types of schools—community colleges and private high schools for example— but I was happy to take the job at St. Joseph’s because it made for an easy transition as there are many similarities in the two schools (even though one is in rural Ohio and the other NYC) I also think that is why they offered me the job, I had 4 years of experience teaching the types of courses they needed.