

Thanks to our authors from 2021:

- Henry Adams
- Kira Adaricheva
- Asher Auel
- Renee Bell
- Pieter Belmans
- Ben Brubaker
- Dick Canary
- Emily Clader
- John Cremona
- Kristin DeVleming
- Pat Devlin
- Mine Dogucu
- Colleen Duffy
- Della Dumbaugh
- Ranthony Edmonds
- Thomas Fleming
- Tom Gannon
- Skip Garibaldi
- Robert Christ
- Noah Giansiracusa
- Daniel Glasscock
- Daniel M. Gordon
- Christopher Hacon
- Stacey Hancock
- Teresa Heiss
- John Jones
- Michael Joswig
- John H. Johnson, Jr.
- Borys Kadets
- Valentijn Karemaker
- Jesse Leo Kass
- Andrew Kobin
- Hana Kouřimská
- Danny Krashen
- Justin Lanier
- Max Lieblich
- Kuei-Nuan Lin
- Marissa K. Loving
- William McCallum
- Peter McNamara
- Claire Merriman
- Elizabeth Milićević
- Steven J. Miller
- Susan Morey
- Augustine O’Keefe
- Martin Olsson
- Yumeng Ou
- Igor Pak
- Sarah Percival
- Alexander Perry
- Arlie O. Petters
- Candice Price
- Vic Reiner
- Donald Robertson
- David Saltman
- Fadil Santosa
- Jennifer Schaefer
- Alexandra Seceleanu
- Daniele Sepe
- Adam Sheffer
- Jessica Sidman
- Neil Sloane
- Clifford Smyth
- Christina Sormani
- David Speyer
- Daniel Spirn
- Padmavathi Srinivasan
- Susan Staples
- William Stein
- Andrew Sutherland
- Margaret Symington
- Joe Tenini
- Nicholas Triantafillou
- Bena Tshishiku
- John Urschel
- Robert W. Vallin
- Isabel Vogt
- John Voight
- Ismar Volić
- Chuck Weibel
- Reggie Wilson
- Timo de Wolff
- Jesse Wolfson
- Kelly B. Yancey
- Yunus Zeytuncu
- Lori Ziegelmeier

References

- [Bon18] Anthony Bonato, *Limitless minds: Interviews with mathematicians*, American Mathematical Society, Providence, RI, 2018. MR3838367
- [Tes21] *Testimonios: Stories of Latinx and Hispanic mathematicians*, edited by Pamela E. Harris, Alicia Prieto-Langarica, Vanessa Rivera Quiñones, Luis Sordo Vieira, Rosaura Us-canga, and Andrés R. Vindas Meléndez, American Mathematical Society, Providence, RI, 2021.

Interviewing for a Job in Academia

*Thomas Hull, Michael A. Jones,
and Diana M. Thomas*

All three of us have been on the job market repeatedly over the last few years searching for positions at schools which emphasize teaching. We put extensive time and effort into our job searches, and our preparation led to on-campus interviews and job offers. The experience and insights obtained in our job searches may help other candidates on the market.

In our opinion, the AMS Employment Register is a valuable tool for making contacts that can lead to on-campus interviews. We provide suggestions on how to make the most out of your interviews at the Joint Meetings and at prospective schools. To understand our backgrounds, we begin with a short biographical section that contains details on our job qualifications and requirements.

Biographical Information

Thomas Hull, PhD (Graph Theory), University of Rhode Island, 1997. When I started graduate school, I heard about the tough academic job market. I was determined to learn as much about the job application process as possible while still in graduate school. I attended many conferences, learned to network, updated my vita regularly, and received plenty of good advice. Preparing for the job market was as much a part of my daily graduate student career as teaching and performing research.

My efforts paid off: I had 14 interviews at the Winter Meetings in 1997 (either through the Employment Register or on the side), went on 5 on-campus interviews, and received 2 job offers. I accepted a tenure-track assistant professorship at Merrimack College. During my first year at Merrimack I served on a search committee; my duties included interviewing candidates at the Winter Meetings in Baltimore.

Thomas Hull is an associate professor at Western New England University. His email address is thu11@wne.edu. When the piece was initially published in 1998, he was an assistant professor at Merrimack College.

Michael A. Jones is an associate professor of mathematics at Montclair State University. His email address is jonesm@mail.montclair.edu. When the piece was initially published in 1998, he was an assistant professor at the same institution.

Diana M. Thomas is a professor of mathematics at the United States Military Academy West Point. Her email address is diana.thomas@westpoint.edu. When the piece was initially published in 1998, she was an assistant professor at New Jersey City University.

DOI: <https://dx.doi.org/10.1090/noti2406>

Michael A. Jones, PhD (Game Theory), Northwestern University, 1994. Applying for jobs is just like any other activity: practice makes perfect. I have had plenty of practice over the last five years. My first post-PhD position was a three-year position at the US Military Academy at West Point. Although I tested the academic job waters while at West Point, I completed my three-year position and took a one-year visiting position at Loyola University, Chicago. I applied to approximately 80 positions with no restrictions to geographical area. After being on the market four out of the last five years, I was starting to feel pretty confident about the application process, yet my lack of success in previous years had left me nervous about actually receiving an offer. All of the experience finally paid off: I had 17 interviews at the Winter Meetings in Baltimore, went on 4 on-campus interviews, and received 1 job offer. In fall 1998 I began a tenure-track position at Montclair State University of New Jersey.

Diana M. Thomas, PhD (Dynamical Systems), Georgia Tech, 1996. My first post-PhD job was a three-year position at the US Military Academy at West Point. When I went on the market again, I restricted my search to the New York City metropolitan area. Since my job search was selective, I decided to send out only 30 applications tailored to each school. I let prospective schools know that I had colleagues in the area that I collaborated with and that I attended seminars at other local schools. I felt that this showed the schools that I was already very active in this geographical location. I also made an effort to try to meet people from the schools at conferences and seminars. In my opinion, such a detailed and focused approach creates an advantage in a selective job search. My results were 6 interviews at the Winter Meetings, 7 on-campus interviews, and 3 job offers. Four of the schools from the Joint Meetings invited me for an on-campus interview. I accepted a position for a tenure-track assistant professor at New Jersey City University, which I began in fall 1998.

The Employment Register

By now you probably have some preconceived notions about the Employment Register (ER). For those who are unfamiliar with the ER, 15-minute interviews are conducted every 20 minutes in a large room where interviewers from schools sit at numbered tables. Some candidates are disappointed with their interviews and/or with the number of interviews received through the matching program. However, taking the ER seriously helped us make job contacts that led to on-campus interviews and job offers. Here are some pointers on how to make the most out of your ER interviews and other contacts you have with prospective schools at the Joint Math Meetings.

- **Attend the Joint Meetings at least once before you are on the market.**

TH: By attending the Joint Meetings, you can see how the ER and Interview Center work; this should make you more comfortable and confident when you are on the market.

DT: Remember to talk to the graduate students who are ahead of you and participating in the ER; ask them questions about their interview experiences.

- **Contact schools before the meetings.**

MJ: Apply for jobs as early as possible so that employers receive your application materials before the end of the fall semester. Also, you may want to e-mail schools that are going to be at the Meetings (determine this from the ER List of Employers) to let them know that you are interested in meeting with them.

TH: Many schools do interviews outside of the ER. They e-mail their candidates beforehand and schedule interviews on their own. These interviews are usually longer and can be more valuable. Do not worry that these outside interviews may conflict with interviews you might get through the ER, as you will be able to reschedule any conflicts.

- **Sign up for the ER List of Candidates.**

MJ: Even if you are not attending the Meetings, by submitting a shortened vita to the ER List of Candidates, a possible employer may see your information and contact you.

- **Stay at one of the central hotels.**

MJ: In between interviews, I found it helpful to retreat to the serenity of my hotel room to prepare for the next interview. Staying at one of the main hotels means that you do not have to travel as far to get to your room.

- **Take the interview seriously.**

MJ: The interview is an opportunity for you to put a face with your name, to make a good impression, and to demonstrate your ability to communicate.

TH: Having a personality associated with your résumé makes a big difference. Even a 15-minute interview can be enough for a search committee to remember you and make your résumé stand out when they are back home flipping through several hundred applications.

- **Bring copies of your application materials.**

MJ: Even if you have applied to a position previously, offer the interviewers copies of your application materials. Since schools typically have two interviewers, providing an additional copy means that both interviewers can look over your materials.

- **Bring a teaching portfolio.**

DT: If an interviewer was tired or could not think of questions to ask me, I brought out my teaching material. Crannell [Cra92] provides suggestions about what a teaching portfolio could contain.

- **Research the school before the interview. Do not use the interview as a get-to-know the school chat.**

MJ: Although the ER provides college guides, consider bringing your own; these guides provide brief descriptions of the schools and useful data (e.g., SAT scores, class size, library funding, etc.).

DT: I used the computer facilities at the meetings to examine schools' Web sites. I noted the professors who have research interests that matched mine and kept track of special programs, software usage, etc.

- **Contact schools through the message boards and message boxes.**

DT: I did not get matched to interview with some of the schools in which I was really interested. I left notes in their boxes at the ER. One school was able to squeeze me into their schedule, and our meeting led to an on-campus interview.

MJ: When contacting a school, provide a copy of your vita and give explicit reasons why they should see you and why you are serious about their position. Interviewers are extremely busy at the meetings; do not waste their time unless you fit their position.

- **Give a talk at the meeting.**

TH: Send in an abstract for a general 10-minute talk, preferably on your dissertation research. Schools that are interested in you will come to your talk, providing you with another chance to make an impression. Keep the talk clear and fun, especially if you are trying to attract liberal arts schools.

MJ: Let your interviewers know when and where you will be speaking.

- **Give your interviewers an opportunity to get to know you better.**

DT: I told interviewers about a senior thesis student who was presenting a poster in a student session. The schools had an opportunity to talk firsthand about my in-class performance with one of my students.

MJ: If your letter writers are at the meetings, ask them if you can refer interviewers to them to talk about your background and abilities.

- **Dress well.**

TH: It is better to err on the side of overdressing. Go with whatever makes you feel comfortable, but look nice. Try to dress professionally.

- **Be happy!**

TH: The interviewers are tired, perhaps talking with thirty candidates in one day. They have as much desire as you do to make this process easier. Try to put yourself in their shoes. They want to meet someone happy and fun. Take a minute to chat about the talk you just saw. Make them think that talking with you is a pleasure, not a chore, and they will remember you.

- **Take notes.**

TH: If you are successful, you will be interviewing with many different schools and meeting many different people. Keep a notebook and scribble down impressions after each interview.

MJ: I prepared a standard form which I used for all of my interviews. Before the interview I filled in as much of the form as possible. Filling in the gaps provided me with

questions to ask the interviewers. For each school I made a list of items that I wanted to mention.

- **Send "thank you" notes after the meeting.**

TH: Keep the notes short (e-mail is fine), but let them know that you appreciated their time and you are interested in their position.

Typical Interview Questions

You will be asked many questions. Because your time will be limited, you should have answers prepared ahead of time. Practice answering the following questions with your adviser or fellow job seekers.

- **Tell us about your dissertation.**

Give a 2–3 sentence response understandable by a mathematician in any field. If requested, go into further detail.

- **What kinds of courses do you want to teach?**

Be specific and honest. Remember, you may end up working there and having to teach the courses you claimed you wanted to teach!

- **How would you approach teaching basic-level math courses?**

Realize that many math departments service other departments. Teaching lower-level courses well is important for their livelihood. Even if you do not have experience teaching, prepare yourself for these types of questions.

- **What do you think of calculus reform and/or teaching technology (e.g., graphing calculators)?**

Do not come across as too opinionated. The safe thing to do is say that there are good points to calculus reform, but there are problems too. Stress your experiences with calculus reform and technology usage in the classroom.

- **How would you describe your teaching style?**

This is a tough question that you need to prepare well. Looking through your student evaluations may help you develop an answer. You could also ask a colleague to sit in on your class and provide you with information on your teaching style.

- **What distinguishes your teaching from that of your peers?**

Try to come up with something original that will stick in their minds.

- **What type of salary are you looking for?**

Even though this question may seem unfair, be prepared to deal with it.

- **What are your research plans beyond your dissertation?**

Be clear on what your research plans are. You are not expected to have a crystal ball and know what you will work on in the future. But interviewers want to be reassured that you have ideas beyond your dissertation that you can work on after you leave graduate school.

- **What do you see yourself doing in the next five years?**

Be honest with these questions. If you have a specific research plan, outline it briefly. If you would rather spend your time focusing on teaching, say so. There are schools

out there that are looking for both of these answers, so do not be afraid to be honest and true to yourself.

On-Campus Interviews

Most on-campus interviews follow a script that reads something like: fly in, go on a campus tour, meet the faculty and administration, give a talk, and return home. Realize that different schools have different methods of searching for and ranking a candidate. Typically, a search committee decides on which top three or four applicants to interview; they also rank their top candidates before the interview. From personal conversations it seems that the rankings did not change after the interviews were conducted. This may seem surprising at first, but rank is typically determined by substantial criteria like publication record, teaching experience, field of expertise, letters of recommendation, etc. Most likely your publication list or teaching experience will not change drastically from the time you send in your application to the time you interview at the school. Here are some suggestions that may help in the interview process.

- **Know your audience.**

MJ: Some schools will require a talk at the undergraduate level, while others want a more high-powered talk. Make sure you are informed at what level to pitch the talk.

- **Prepare multiple versions of your talk.**

DT: Typically, schools will ask you to prepare a talk aimed at an advanced undergraduate mathematics major. Since the job talk is the one time most of the faculty are able to see you in action, you also want to show you do solid and interesting research. It is difficult to determine how to strike a balance. I eventually had three versions of my talk prepared (nontechnical, advanced undergraduate, and technical). Job talks are usually given in the afternoon, so after spending the day with the faculty I got a feel for which version of the talk to present. You could also ask the school in advance if you can give two half-hour talks instead of one hour-long talk. The first talk would be geared toward students, while the second talk would be for faculty.

- **Bring and leave a portfolio with all of your accomplishments.**

DT: Individual committee members may be looking for specific information. Your portfolio provides information that the faculty want to know and did not have time to ask you during your interview. Make sure it is well organized and tabbed so your interviewers can quickly find relevant information. My portfolio contained: (1) AMS Cover Sheet and vita; (2) classroom exercises, handouts, and projects/samples of student work; (3) completed research papers; (4) papers in progress; (5) grants received; (6) student evaluations. Leave the portfolio behind for faculty who were unable to make your acquaintance.

MJ: It is also a good idea to keep this portfolio up-to-date for departmental reviews and to help organize your materials for tenure.

- **When teaching a course, do not do anything fancy.**

DT: I was asked to teach a class for one interview. I had the students break into groups. The students did not have time to warm up to me and did not feel comfortable interacting with me. Teaching a class on an interview is almost like teaching on the first day of class, only with faculty watching. If you are required to do this for your interview, give a well-prepared clear lecture with periodic questions thrown at the class.

- **Be yourself.**

DT: Do not try to be every member's ideal candidate. Most faculty have probably looked at many applications and served on search committees for previous job searches. They will know if you are trying too hard to tailor yourself for their position.

TH: I know of one job seeker who openly told schools that she did not want to do any research after her dissertation. And what do you know? At one of the schools she interviewed with, this was exactly what they wanted to hear. You help everyone, including yourself, by being honest.

- **Ask for feedback.**

DT: If you do not receive an offer from a school, contact them and ask for feedback on your interview. They may be able to provide insights on the search process and how you came across. You can use the information to determine how to interview better next time.

Questions to Ask the Search Committee

While on an interview you will have many opportunities to ask questions. We suggest that you come prepared with a list of questions, because you may forget to ask a particular question if you are nervous or anxious about the interview. Moreover, good questions will help engage faculty members in discussion and reflect well on your personality. Ask questions to help determine if you would be happy and successful at the institution. Below are a few questions to get you started, which we have divided into different categories.

Life Issues

- Can you provide specific information about the health insurance and retirement packages?
- Is there affordable housing in the area? Where do the other faculty live?
- What types of childcare facilities are available, and where do faculty send their children to school?
- Would my children be able to attend the college for free or for reduced tuition?

Teaching Environment

- Typically, how many contact hours and separate preparations will I have per term?
- Are there course reductions for junior faculty and for faculty to pursue research?
- What kind of computer facilities are available for the students? How, if ever, is technology used in the classroom? Does this include access to a network with standard mathematical software packages?

- Will I be able to teach a variety of courses ranging in levels?
- Is summer teaching available? expected?
- Is there an undergraduate colloquium series? Is there an undergraduate math club and/or chapter of Pi Mu Epsilon?

Research Environment

- Are there start-up funds available for your research? What computer equipment do individual faculty members receive?
- Are there opportunities for a research-based leave or early sabbatical (before tenure)?
- Does the library have CD-ROM abstracts like *Mathematical Reviews*, an online subscription to MathSciNet, or subscription to document retrieval services? How is the library at getting interlibrary loan materials? Will I have input in future acquisitions to the collection?
- Is there a department colloquium or seminar series?
- Is there travel money to attend and/or present at conferences? Are there funds for undergraduate research?

Service Responsibilities

- Will I be responsible for advising students? And if so, how many students?
- How are the committee assignments made? Will I have an opportunity to serve on campuswide as well as departmental committees?
- Are the service requirements less for junior faculty?

Assessment of Performance

- How is teaching evaluated for tenure and promotion?
- What are the research expectations to receive tenure?
- Is there a yearly review? Is there a three-year review?
- How many people have come up for tenure in the past ten years? How many have received tenure?

Conclusion

Our best advice is to prepare well for your interview. Unfortunately, you will encounter situations that will take you by surprise. Minimize this by talking to young faculty and fellow graduate students about their experiences. Further, consult Web pages, like the Young Mathematicians Network [YMN] or the AMS Web site [Emp], to glean tips from the advice of job market veterans.

There is no set formula for a successful job search. There is an infinite number of factors that come into play when a department hires a new faculty member, and many will have nothing to do with you! But the interview is an aspect that you can partially control to prove that you will be a cherished addition to their department. Do not let the things that are in your control work against you. An ounce of preparation is worth a ton of good impressions.

ACKNOWLEDGMENTS. The authors would like to thank Neil Calkin and an anonymous referee for their helpful comments and suggestions.

References

- [Emp] AMS Employment Services Web site, <https://www.ams.org/employment-services>.
- [Cra92] Annalisa Crannell, *Applying for jobs: Advice from the front*, *Notices Amer. Math. Soc.* **39** (1992), 560–563.
- [Hull] Thomas Hull, *Hunting for a job in math academia: Job interview advice*, <http://origametry.net/job/jobint.html>.
- [YMN] The Young Mathematicians Network, <https://youngmathematiciansnetwork.wordpress.com>.

Giving a Talk

Bryna Kra

No one likes to sit through a bad talk, but unfortunately everyone does it much too frequently. No one sets out to give a bad talk, but probably all of us have done so. Paul Halmos [Hal74a] wrote a beautiful article on how to give a talk, and his advice remains apt today (and some of it is repeated here). But new technology, varying audiences, and different venues force modifications in how we give talks. This is subjective advice on how to give a good talk and, especially, how to avoid giving a bad talk. Of course, not all of it applies to everyone or to every situation, but my hope is that anyone reading this article is provoked into thinking a bit more when preparing a talk.

What Kind of Talk?

Think about the purpose of the talk: Is it a seminar? Colloquium? Conference? Job talk? What is the target audience: is it a survey talk? Is it aimed at graduate students? Is it meant for experts? The answers affect all aspects of the talk, starting with the format: an “old fashioned” chalk talk? Projecting via a document camera or overhead? A computer presentation?

There are no right or wrong answers, but before making a decision, think about the audience and the venue. For a survey talk with many references, a computer presentation might be appropriate. For a large conference, boards might not be available. For a small seminar, one can include details of a proof that can only be done on a board (or perhaps more accurately, should only be done on a board). Find out if the room is appropriate for using the board, particularly if it is a large room. When using technology, find out if the screen is easily visible, if it can be combined with use of a board, and if a computer is provided. These decisions depend on the culture of the venue for the talk, but with proper planning, any presentation method available can

Bryna Kra is Sarah Rebecca Roland Professor of Mathematics at Northwestern University. Her email address is kra@math.northwestern.edu. When the piece was initially published in 2013, she was a professor at the same institution.

The author was partially supported by NSF grant 1200971.

DOI: <https://dx.doi.org/10.1090/noti2409>