Joe answers 23 questions and asks 5

- Joe Tenini (UGA 2014)
- https://github.com/jtenini/math_and_industry

Who is Joe Tenini?

Currently: Principal Data Scientist - UMG

Math

UGA: 2009 - 2014 (PhD, Algebraic Geometry, V. Alexeev)

Data Science

- **Epic:** 2014 - 2017 (patient triage and monitoring models)
- **Red Ventures:** 2017 - 2023 (web recommender systems)
- **Universal Music Group:** (Data + Music)

Questions from you

Jennifer Royal posted 23 questions that she had recieved from students.

These are those questions along with my answers.

Q1: Did you do any certificates or additional programs while at UGA? or projects?

- Yes! 🎉
- I took 2 actuarial exams in a panic when I learned I was having twins. 👯
- I wish I had done much more - especially internships. 😬

Metaphor: 🏀

Q2: What non-math course(s) do you wish you had taken?

- Computer science, especially practical software development.
- Maybe some basic business or finance courses.

Q3: What extracurricular activities were helpful for getting a job?

- Teaching and tutoring!
- Being able to explain technical or abstract concepts to all levels is a super power!

Story time: My first job.

Q4: Did you use the UGA Career Center? If so, which program(s) were helpful?

Yes!

- Resume review
- Job fairs

Related: I have hired from college job boards.

Q5: What math course helps you most with your job?

In order of importance:

- Being fearless.
- Being able to read technical papers.
- Linear algebra.
- Multivariable calculus.
- Graph theory.
- Geometry, Topology, Algebra

Q6: What do you wish you had known about the process of getting a job back when you were a student?

- I bought too much into the general idea that getting a job outside of academia would be really really easy and lucrative.
- It’s in fact very hard.
- It does not require as much preparation as landing a tenure track position at a tier 1 university, but it still requires more preparation than you can do in a couple of months of evenings and weekends.

Story time: My first interview with a bank.

Q7: How would you list and rank what employers look for in candidates for your role in the current job market?

You have to pass barriers in the job market, and each one has separate skills that depend on the specific job - in DS/ML/SWE it's sort of:

Application -> screening call -> coding int.
whiteboarding int. -> behavioral int. -> executive int.

Q8: Any tips on how to frame pure math skills on your resume/ other resume tips?

I would focus on (in order of importance):

- Valuable outcomes
- Skill validation
- General credibility as a doer of hard things

Q9: Especially how to stand out compared to say a Stats Major for a Data Science job for example or a biology major for a biostatistician role

- Math will probably be viewed as the most hardcore in terms of ability, but there will be concerns over your interest and skills over a specialist.
- You have to demonstrate that you have the specialist-level skills and interest too.

Q10: What resources would you recommend for interview preparation?

This is industry and job specific, but for entry level DS/ML:

- Documentation for pandas, numpy, and sklearn.
- LeetCode (leetcode.com) or equivalent.
- Cracking the Coding Interview by Gayle McDowell
- The Elements of Statistical Learning by Hastie, Tibshirani, Friedman
- Business Model, Challenges, Solutions

Q11: What advice do you have for salary negotiations?

Know the going rates

- Try to get multiple offers
- Ask individuals about their offers (politely).
- Research on glassdoor, etc.
- Read surveys (BurtchWorks)

Q12: What is a reasonable starting salary for a math BS? Math Ph.D.?

- BS DS: $93,693 ($75k / $88k / $110k)
- MS DS: $100,883 ($80k / $100k / $120k)
- PhD DS: $121,623 ($100k / $119k / $137k)

BurtchWorks 2023 DS Salary Survey: IC 0-3yrs

Q13: How did you find the ad for the job you eventually got?

- Word of mouth, personal connection
- LinkedIn

Q14: Any tips for weathering the stressful job search process?

- It is like other stressful situations.
- Prioritize using healthy coping skills.
- Learn new coping skills.
- Use the healthcare system if able.

Q15: How convincing is this: “I’m not trained in the specific work that this job involves but I’m a well-trained mathematician so I can reason effectively, solve hard problems and learn analytical skills quickly. So you should hire me.”?

- This was 100% me 😍
- I think this maybe worked at one time, but not anymore that I’ve seen.
- You have to be the one to connect the dots in most cases.

Exceptions: Niches that have trouble hiring, "programs".

Q16: What skills from your math major do you apply in your current role?

In order of frequency and importance:

- Learning new technical frameworks.
- Teaching others technical concepts.
- Abstraction.
- Linear algebra, multivariable calculus, occasionally more exotic things.

Q17: What are the skills you need that you have had to pick up on your own?

Pretty much all action-level skills I use day to day, I've had to pick up myself - this is the allure of a math degree. Confidence (and skill) in learning new things.

Q18: What does a typical workday in your life look like? How many hours do you devote to work?

- Remote
- 5 days / week. h hours / week, flexible
- 70 / 30 : technical work / meetings
- Use Case Development / Design / Implementation / Teaching

Q19: Do you need to devote additional time outside your work to upskill for growth and/or maintain your role?

Yes!

- 1-8 hours / week
- More when trying to make a step forward or on the market.

Q20: Would you advise your undergrad self to get an additional major or degree? If so, what?

- Doing a math PhD was one of the hardest and most rewarding things I've done, it has opened many doors for me.
- That said, it's like getting married, I wouldn't recommend it to anyone. It's probably only for people who can't be talked out of it - you certainly shouldn't be talked into it.
- If you can imagine yourself doing anything else . . . do that instead.

Q21: Do certifications/bootcamps work? If so, what should one keep in mind when selecting which one?

I don't have experience with them, but I would say:

- Focus on projects that can be shared or . . .
- Internships

Q22: Any tips on how to expand your network to people in the industry?

- Quality of connection is more important than lot’s of little ones.
- I would say projects/problems are the best way to make connections - teaching/tutoring, having questions that drive you to ask around.

Q23: Would you be open to students reaching out to you? How would you like them to contact you?

Yes, email me!

As for my 5 questions for you:

- How to Start Your Story in Data Science
- https://www.ams.org/notices/202104/rnoti-p536.pdf

5 Questions

1. How will you connect the dots for them?
2. How will you cover the last mile?
3. Where will you sit in the value chain?
4. How will you work with your manager?
5. Will you be using old skills or new ones?

Thank you!