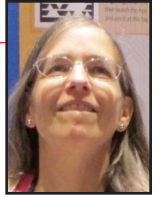




Profile: Theresa Rahikka

Applied Research Mathematician
National Security Agency (NSA), Fort Meade, Maryland



BA, Mathematics, Boston College (Secondary Education Minor); MA, Mathematics, Boston College; MS and PhD, Math, University of Notre Dame

EARLY INFLUENCES

What sparked your interest in mathematics? When did you know that you would use math as a path to your career?

I was always interested in math, and played math games as a child. I knew that I wanted a math career in 7th grade, when I learned what a "major" was.

Was there a pivotal moment/experience/ influential person that led you in this direction? Any memorable courses or experiences that made a difference in directing you to your career?

Originally I thought I would be a teacher, and was only unsure about the level (high school or college). As a result, I minored in secondary education in college. However, after doing my student teaching, I decided college-level teaching would be better for me, so I got my PhD and a job at a small school (Mount St. Mary's College). Unfortunately I was denied tenure. At first I thought I would still stay with teaching and accepted a one-year position at Shippensburg University. Then a friend suggested that I apply to the NSA. As the faculty advisor for the Mount's Math and Computer Science Club, I had gone on a tour there. The idea was intriguing, so I interviewed at the next Joint Mathematics Meetings (JMM).

CAREER/CAREER PATH

Describe your current position and briefly, the path you took to get there.

As mentioned above, my title is Applied Research Mathematician, but I don't really do any math research anymore. I went through a three-year development program at the NSA. Upon graduation from the program, I joined one of the offices (which we call branches) I had toured in, doing some work in error correction. While I was in that branch, I also gave management a try, becoming the deputy chief of the branch while still doing some technical work. I found that management really wasn't for me, so when my chief said I would have to give up the technical work side of my job, I decided to change branches. After talking to a few people, I chose a branch that did very different work. The work I do now leans more towards computer science than math.

What is a typical day at work for you? Please list your job responsibilities. What are you responsible for?

I have some projects that I worked on previously and now maintain, as well as a few new projects. In addition, I'm the property officer for my branch and involved with the hiring of mathematicians.

What do you like best and least about your profession? What is the stress level associated with this type of position?

*Best: Challenging and interesting problems, the ability to change positions without leaving the NSA, and the people I work with.
Least: The bureaucracy (e.g., having to take polygraphs and fill out financial disclosure forms).*

How many hours per day or week do you typically work? Do you have flexibility that allows a good life/work balance?

I typically work 8 hours a day, 40 hours a week, but I can flex that as desired. Since I'm not allowed to take work home, I feel like I have a very good life/work balance.

CAREER EXPECTATIONS FOR YOUR FIELD/POSITION

How/why are applied mathematics and/or computational science important to your industry? How are they used?

Both applied math and computer science are extremely important to the NSA. With math, it's more the ability to think analytically that matters, although some people do "real math." For computer science, all aspects (e.g., programming, networks, hardware) are very important.

Where do you see the future of math in industry or in your particular career?

I expect math to continue to be very important to the Agency.

Have you worked other jobs, or held other job titles as an applied mathematician or computational scientist?

I did teach math for several years; however there was very little applied math or computational science involved in that.

ADVICE

If you could advise someone currently pursuing the same degree or profession, what would you say? What are some steps you would recommend to students, or to those in their early careers, that perhaps you wish you had taken earlier? Are there things

you would have done differently?

My main piece of advice for students would be – unless you are 100% certain that you want a pure research position – learn about computers! The ability to program in languages such as C, C++, or Java opens up many opportunities (at NSA and elsewhere). Knowing a scripting language (e.g., Perl, Python) and a math package (e.g., Maple, Mathematica) also comes in handy. Other useful skills include being able to set up and/or maintain a network, and the ability to work with hardware.

Any specific supplementary skills or training you can name that a person pursuing this profession should acquire?

In addition to having strong quantitative skills, I would recommend having a strong background in Microsoft Excel and VBA.

SALARY

For 2015, can you speculate about the salary range of starting, mid-level and /or senior positions in your specific field?

Typically, people with a Bachelor's degree are hired at grade 7 (about \$50K in 2014), with a Master's degree at grade 9 (about \$60K in 2014), and with a PhD at grade 12 (about \$90K in 2014). I do not know the rates for 2015, but the salaries for various grades are public information and can be found on the OPM (Office of Personnel Management) web pages.

Where can people find out more about your profession?

They can check the NSA web page (www.nsa.gov) or email the math hiring manager (MathJobs@nsa.gov for full-time positions, Math@nsa.gov for summer internships). People can also stop by the NSA booth at JMM, JSM (Joint Statistical Meetings), or MathFest.