Dean Jose M. Cruz

Tell us a bit about yourself — where did you grow up, what year did you graduate and in what concentration(s), and what do you do now? I came to the US in 1991 for my undergraduate degree sponsored by my country, the Cape Verde Islands. Initially, I was at Indiana University to study English, to make sure my English was good enough for college. I came to UMass in the fall of 1991 to study computer systems engineering. I was doing the degree, I realized I was taking a lot of math classes. I took Calc III from Professor Nate Whitaker. In order to keep my visa, I needed to take summer classes, but there weren’t many engineering classes in the summer, so I took math classes in the summer. I realized I could do a second degree in Mathematics if I did just one more semester. I wasn’t paying for it, since I had a scholarship from my country, so I said why not! In 1995, my scholarship ended, so I applied to do my masters in computer systems engineering. I was hoping to get a TAship to help pay for it, but I wasn’t able to get one. So I didn’t know what to do. In late December of 1995 I was walking by the campus center, and I ran into a math professor. As we were talking, I mentioned that I wanted to do a masters program but couldn’t afford it. He mentioned the new Applied Math Masters program, which had funding for students. I talked with Professor Bruce Turkington and others in the Math & Stats Department, and they allowed me to start TAing for the math department in the spring, and to officially start the Masters program in Applied Mathematics in the fall of 1996.

One of my advisors, Professor Bruce Turkington, suggested that I specialize in business, so I took a few business classes. Once you have a math degree, business classes seem much easier! My economics professor suggested I could also do an MBA, so after doing a masters in Applied Mathematics, I did an MBA. Initially, I wanted to do financial risk management, but while doing the MBA, I fell in love with supply chain management, which was the area of study of one of my professors. Unfortunately, that professor was on sabbatical the next year, but Professor Anna Nagurney offered for me to do research with her. I started the PhD program in Management Science at the Isenberg School of Business in 2001, and in 2004, I got my PhD. After the PhD, I got a job at UConn. So in total I was at UMass for 10 years and five degrees!

How did you decide to major in applied math? First of all, it was an opportunity to do a masters and not pay for it! Also, with my background in engineering, I was already doing a lot of mathematics. I wasn’t too excited about abstract mathematics, but applied math was appealing to me. A lot of what you do in engineering is applied math – a lot of differential equations!

What were your favorite classes and/or extracurriculars at UMass? My favorite classes – I took Calculus 3, and Numerical Analysis 1 and 2 with Professor Nate Whitaker. His classes were very appealing to me. He was one of my dissertation chairs in my PhD program. At UMass I would also play a lot of soccer. You would either see me in the physical sciences library studying or see me at Boyden playing soccer. I played soccer all over the state. I also enjoyed dancing and music.

How did you find your first job after college/grad school? When I graduated in 1995, I got a job at a company in upstate New York. This was during the middle of the dot com bust. On my first day of work the company closed the door! I moved back to Amherst to figure out my next step. After that I started working at UMass Housing Services as a database manager, developing database applications. I kept working there part time while doing the Applied Math Masters program. For a short time after the master program I was working both for Housing Services and doing adjunct teaching for the math department. When I joined the PhD program in Management Science they didn’t want me to do any more work – they wanted me to focus fully on my PhD.

UConn was my first job after UMass. In 2003 my advisor told me I could defend my dissertation soon if I wanted to. In August 2003 I started looking at academic jobs. I was also thinking about industry jobs, but academic jobs were more appealing to me since I had been in that setting all my life. I applied for many academic jobs, with the one restriction that I wanted to be on the East Coast because I wanted to be able to fly home to the Cape Verde Islands more easily. In the middle of doing many interviews, I heard from my advisor that UConn had a job opening for someone with my credentials for an Assistant Professor position in the Operations and Information Management Department. I applied, but I was more hopeful about other jobs because UMass and UConn usually do not hire each others’ graduates! I had a phone interview and a campus interview. One day while driving to another interview I got a phone call with an offer from UConn. A few days later I got another offer. I chose UConn because I felt very connected and welcome in the department – they were hiring a lot of young faculty. Also, I would be close to Amherst, where most of my friends were.

How do you use math/stats in your job? Well, the whole foundation of my research and my academic life is based on mathematical foundations. In my research I use optimization models, differential equations, game theory, probability theory, statistics – it’s all based on a mathematical foundation. My teaching is also centered around applied mathematics. It’s applied to finance and business, but it’s really all mathematics.

What would you say are the most important skills and/or qualities of college graduates looking to enter your profession? For undergrads: network, network, network! This is something that math departments maybe don’t teach as much as they should. Don’t just focus on your books – participate in activities around campus, like coffee hour in the math department. Try to network with faculty, learn what they’re doing. That opens a lot of doors. I got into the graduate programs I did through networking with professors at UMass. You can also learn a lot from going to seminars. Even if you don’t understand everything in the talk, new ideas come from these talks. Doing extracurricular activities besides just your classes like clubs is also great. Friendships I made on the soccer field or on the dance floor have helped me a lot over the years.

For academics: It’s important to be able to navigate the politics of your job, especially in academics. For that, you need to communicate well with your peers. Know what you mean, and tell people exactly what you mean. At the end of the day, it is your colleagues who will evaluate you, so if they don’t like you, it will be a problem. Mathematical skills are of course also important. Your co-authors want to work with someone who knows what they’re doing. It’s also important to have the maturity to know and select what work you want to do. For young tenure-track faculty, it is typical to want to work with more senior people, but senior faculty will want you to do a lot of work. So don’t promise more than you can deliver!