

Know Your Wisconsin Mathematician

Interview with Robert F. Allen, UW-La Crosse, by Eric Eager



Where did you grow up?

I was born in South Carolina, but grew up in Alexandria, VA. I went to T.C. Williams High School (the high school from the movie “Remember the Titans”).

Was there a time in your life when you discovered that mathematics was what you wanted to do?

I’ve been interested in mathematics for quite some time, probably since one of teachers saw an aptitude in me while observing me as a peer tutor. At that point I wanted to be a math teacher. Then, when I saw in a physics class how useful math was I became even more hooked – and wanted to study it in college. However, when I was a freshman in college, a computer science professor told me there weren’t any jobs in mathematics. It wasn’t until my senior year (when I had already majored in C.S. for four years) when I found out that he was wrong, that there were many opportunities for people in with math degrees. After a few years as a software engineer I decided to go back and get my degrees in mathematics.

Where did you go to undergraduate school?

University of Virginia – Bachelor’s in Computer Science

George Mason University – Bachelor’s in Math (while working as a software engineer)

And what about graduate school?

University of Virginia – Master’s degree in Math

George Mason University – PhD in Operator Theory

What was the influence of your family on your education?

My parents always said their children would go to college, I think even before they had children. My father worked at AT&T as a technician, where he used a lot of math, so he knew the value of a solid education in math and pressed that upon me from day one. My mother was very supportive no matter what I did, and just wanted me to have an easier life than she and my father had. Having an older sister whom I watched go through her education was also important in the process as well.

Are there any teachers who had influenced you to become a mathematician?

I had a teacher named Mrs. Hilton that really encouraged me and saw that I had an aptitude not only for learning and doing mathematics, but also as a teacher when she observed me as a peer tutor.

My Ph.D. advisor, Flavia Colonna, was my complex variables professor when I was an undergraduate at George Mason. From my first class with her, I knew I wanted to do what she did. At first I was a bit discouraged, since she said that complex analysis was mostly a closed field, but as I got to know her and her work better, I realized that there were still plenty of excellent problems to work on with her. We’ve continued to collaborate to this day.

How did you end up at UW-La Crosse?

During the 2008-2009 job market I was applying for jobs, and when one of my external letter writers saw that I had only applied for roughly 80 jobs he asked me why I hadn’t applied for more! When I dug deeper I saw that UWL had a position open for an analyst (which is relatively rare). During my initial interview with UWL, I was hooked.

I know that students have been a big part of your career. Can you please talk about what students have meant to you as a teacher and mathematician?

Interactions with students are a key part about why it's great to be a professor at UWL. Because of the incorrect advice I received during my college career, I feel an extra responsibility to take an interest in my students' lives and help guide them through this time in their careers. Students are what motivate me and make me want to come to work every day.

What courses do you like to teach?

I enjoy teaching real analysis, complex analysis, abstract algebra, calculus 1 and precalculus. I enjoy the responsibility that calculus 1 brings – that I have the ability to shape the way college freshmen view mathematics, and how this view propagates with them as they develop through our program as math majors. I don't have a class I don't like teaching, to be honest.

Over the years, did you find that teaching of mathematics changed?

I see a lot more work to get students to understand the "why" more so than the "how", and this is happening throughout the entire curriculum, which is exciting. I really enjoy observing the math education faculty in my department, teaching the next generation of math teachers struggling to figure out the "why" more so than the "how", so that they can continue this movement when they become teachers.

I also see a big increase in the use of technology, which is somewhat of a difficult evolution – since it's important for us to allow students to embrace technology without giving them the impression that tools like Wolfram Alpha can do everything for them. Finding a "sweet spot", where students appreciate technology as a tool helping them in the creative process is a challenge that I enjoy undertaking.

How were you involved with the MAA over the years?

I've been involved in Project NExT – Wisconsin since I started at UWL, and been a member of the MAA since I was an undergraduate at George Mason. I was the chair of the steering committee for the 2016 MAA Section Meeting held at UWL. This was a lot of work, but it was rewarding to see the section meeting held on our campus. I've also served on panels for national Project NExT, and this fall I'll be one of the speakers at Project NExT – Wisconsin on November 5-6, in Baraboo, WI.

What do you think is the best part of being a mathematician?

I get to teach math to great students, work on my research, collaborate with amazing people, train the next generation of mathematicians – both undergraduate students and early-career faculty members in my department. The most exciting part of the job is building and being a part of the larger mathematical community – seeing former undergraduates succeed as graduate students, seeing early-career faculty members win teaching awards, publish papers, get promotions.

What is the worst part of teaching mathematics?

Watching students miss opportunities, opportunities that I missed when I was a student at times as well. While I often think I know "what's good for them", I now see it as part of their growth process, as similar experiences were part of mine. These said, this is my second career, and I don't find many bad aspects of this job.

How do you describe what you do when you are talking to somebody outside of mathematics?

I like to describe what I do as solving problems. Whether it's a problem in pure math or something more applied, everything I do generally boils down to solving problems.

What of your work do you like the best? What are you most proud of?

My Ph.D. advisor and I started developing discrete operator theory a while back, which has really opened up my research with undergraduates. There are many real research problems that do not require the student to have a graduate-level background in analysis, so I can mentor them relatively quickly after they show interest. This work has led to two publications with undergraduate students, and an additional paper to be submitted soon.

What is your advice to college students and new teachers?

I try to tell students to ask “why?”. Seeking and finding answers is really what an education is. I also try to tell students, teachers and faculty members to support and embrace struggle. It doesn’t mean that you’re doing a bad job when your students struggle.

Who is a Wisconsin Mathematician that you would like to know? Send suggestions for the next KYWM to Ben Collins, collinbe@uwplatt.edu .
