Mathematics at Appalachian State University

Sarah J. Greenwald and Holly P. Hirst
Appalachian State University

The Institution
Appalachian State University is located in Boone, a town of 13,000 residents in the western North Carolina mountains near the Blue Ridge Parkway. At an elevation of 3,333 feet, residents experience cool, pleasant summers and crisp, snowy winters. The climate draws visitors from throughout the southeastern U.S. to a variety of recreational activities, including skiing, golfing and hiking.

With just 53 students enrolled in three grades, Appalachian was founded in 1899 as Watauga Academy by brothers who were motivated by a driving desire to educate teachers for the mountains of northwestern North Carolina. Appalachian evolved into a state teachers' college, later broadened its mission to include the liberal arts, gained regional university status, and in 1971 became a part of The University of North Carolina system. Today Appalachian is a masters institution of 13,000 undergraduate students, 1,000 graduate students and 700 faculty, and is consistently ranked in the top five Public Universities of the South by US News and World Reports.

Despite its size, Appalachian has a tradition of providing a high-quality, liberal arts and sciences experience with small classes and individual attention for all students. The University was honored for its commitment to freshman programs when Time Magazine named Appalachian the 2001 Masters College of the Year. Many students participate in the summer reading program and various freshman interest groups that link courses across the curriculum.

The Department of Mathematical Sciences combines expertise in applied and pure math, math education, and statistics. The sharing of ideas and information across the mathematical disciplines makes the department a rich place to teach and learn. The department is committed to providing a quality undergraduate experience:

- Classes are small, usually with fewer than 35 students.
- Classes in the major are taught by tenure-track faculty.
- Faculty keep at least ten office hours per week.
- Majors are flexible, designed together by the student and a faculty advisor.

The department graduates between 25 and 50 majors each year. Most enter the workforce in fields such as actuarial science, high school teaching, statistics, high-tech industry, insurance, management, and computing. Twenty percent continue their education in areas such as statistics, mathematics, operations research, engineering, and business. The success of students in getting jobs reflects the faculty's efforts to provide students with excellent training for today's job market, combined with a broad education for the future.

The department is proud of its long tradition of educating teachers, serving the mountain community, and providing a high-quality learning environment for all students.

Alumni Profiles

Julie Cannon graduated with a bachelor's degree in mathematics and a business minor. She then obtained a master's degree in operations research and management science from George Mason University. While in graduate school, she worked as a systems engineer on a missile defense project doing modeling, simulation, and requirements analysis for missile defense systems for TRW, a large defense and commercial contractor known primarily for systems integration. After finishing school, she continued working at TRW, now Northrop Grumman, testing hardware and software, such as message latency requirements between components of a large distributed system. Recently she began a professional development program with the company. Julie is finishing her first rotation with the corporate business development staff, and she will soon be working on system definition for a new satellite. Julie says, “I think it's only a small portion of my job that has required the math that I learned with either of my degrees. What I
Danny Eldreth came to Appalachian as a North Carolina Teaching Fellow and graduated with a degree in Mathematics, Secondary Education. He is currently pursuing his master's degree in elementary education part-time while teaching 8th grade at Ashe County Middle School. He says, "I teach middle school, but my experiences with higher level math and working/volunteering at the high school level have really helped me as a teacher." He advises, "Learn what you can, try to be positive, and keep your notebooks. If you are planning on teaching, you never know what you might be able to ‘modify’ to use within your own classroom one day!"

Jeremy Lane completed a bachelor's degree in mathematics with a concentration in physics and minors in business and statistics. He stayed on at Appalachian for graduate school and obtained a master’s degree in math. Currently, he is enrolled at The University of North Carolina at Charlotte where he is working on his PhD in mathematics with a minor in physics. He has done research on micro-lenses with the physics department and is currently conducting research in stochastic analysis. He chose mathematics initially for two reasons: “I scored higher on the SAT in math than I did on the verbal part, and my older brother was also seeking a degree in mathematics; I wanted to be better than him. After my third year as an undergraduate, I began to really enjoy learning about mathematics, and it was then I decided to actually pursue a career centered in mathematics.”

Jason Kincaid has a bachelor’s degree in applied mathematics with a concentration in physics and a minor in statistics. Immediately after graduation he began working for Sprint where he held various positions: Budgets and Results Supervisor, Regional Systems Administrator, Technical Assistance Center Engineer, and Network Engineer. He recently moved to Skyline Telephone, where he holds the position of Central Office Engineer. Jason says that, “developing and improving analytical skills would help in almost any career path. But it has especially helped me in designing and maintaining networks. If I were to revisit my undergraduate program, I would take more theory courses along with my applied mathematics and statistics courses. So my advice would be to try and make your program as well rounded as possible because now I see how the course work relates.”

Carmen Kincaid Wilson (Jason Kincaid is her brother) completed her bachelor's degree in Mathematics, Secondary Education, and she worked as a corporate actuary before teaching at Ashe County High School, where she now serves as chair of the mathematics department. She returned to Appalachian to complete her master’s degree in Secondary Mathematics Education. In recognition of her outstanding success in teaching mathematics and in using diverse techniques to motivate her students, Carmen was named the 2001 North Carolina Teacher of the Year and she was a finalist for the Presidential Award for Excellence in Mathematics and Science Teaching in 2001 and in 2003. Carmen says that, “The professional relationships that were formed with ASU faculty during my undergraduate years have proved to be very valuable to me in my career. The continued support of these mentors has been a key factor in my professional growth and success as a classroom teacher.” She says that, “When I talk to prospective teachers, I tell them about all of the wonderful rewards they will experience from teaching, but at the same time I also try to give them a reality check on the challenges of teaching in today's high schools.”

From the Left: Julie Cannon, Danny Eldreth, Jason Matthews, and Carmen Kincaid