

Math Musings

*The Newsletter of
the Elon Math
Department
Volume 6
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ELON MATH STUDENTS SHINE IN INTERNATIONAL CONTEST

Both Elon COMAP teams won “meritorious mention” in the interdisciplinary contest in modeling! Out of 106 participating teams from five countries, there were only two outstanding teams and 16 meritorious awards given. All teams receive “successful participant” recognition. We have been competing for the past three years, and last year our team received “honorable mention.” Both Elon teams placed even higher this year (second only to winning the entire contest). Amber Dennison '02, Shaun Lynett '03, and Nate Shown '03 were on the first team, and Joy Blackwell '02, Bob Davis '03, and Katie Iwancio '03 were on the second team.

COMAP, the Consortium for Mathematics and its Applications, is a non-profit organization whose mission is to improve mathematics education for students of all ages. Since 1980, COMAP has worked with teachers, students, and business leaders to create learning environments where mathematics is used to investigate and model real issues in the world. Each year COMAP sponsors a weekend problem-modeling contest. This year's event began on Thursday, February 8, at 8:00 p.m. The teams worked throughout the weekend and submitted a written paper the following Monday at 8:00 a.m. The problem this year focused on the Florida scrub lizard, which is considered endangered. The contestants looked at data to determine factors that contributed to the loss of the lizard's habitat and then recommended to the state of Florida ways to preserve the habitats. They also estimated the fecundity of the adult lizards and the average survivorship among juvenile and adult lizards.

Drs. Crista Coles and Todd Lee were the advisors to the teams. Several members of each team took the math modeling class taught by Dr. Coles during winter term. This class provided great preparation for the modeling challenges of the problem. The Math Department at Elon is ecstatic that our students have received this well-deserved international recognition.

MATHEMATICS COURSES CHANGE FOR FRESHMEN EMPHASIS NOW ON STATISTICS

Many factors have provided the impetus for the Mathematics Department to re-evaluate the 100-level mathematics curriculum. Since the mid-1990s, Elon students have come well-prepared to face increased academic challenges. In spring 1999, an external review committee recommended that the Math Department streamline its core offerings. The current focus on the first-year core at Elon coincided with the efforts to look at the 100-level math classes.

Beginning in fall 2002, students will be placed in math courses based on their level of mathematical maturity. Those who lack confidence and must ease into mathematics will be recommended for Math 100 Algebraic Concepts. The overwhelming majority of students will be placed into Math 112 General Statistics. Students who have repeatedly shown a high level of maturity will be allowed to continue their study of calculus through Math 121 Calculus and Analytic Geometry I or Math 221 Calculus and Analytic Geometry II, keeping them on track with their studies in the sciences. Among the courses dropped from the fall catalog will be Math 111 College Algebra with Applications, Math 110 The Nature of Math, and Math 114 Elementary Statistics.

The new course, Math 112, will provide an introduction to modern statistics. Students will analyze and critically interpret real-world data using information such as the U.S. Census, election results, and health issues. The course emphasizes communication, the use of technology, and collaborative learning. Subject matter includes measure of central tendency, confidence intervals, tests of significance, probability, hypothesis testing, and linear regression. The Math Department believes that the change in curriculum will provide a common numerical experience for students, influence the level of mathematics seen across the disciplines, and streamline advising.

MEMORIES FROM OUR ALUMNI

In Calculus II class, Professor Barbee drew a graph and his scale reached above the board. Without missing a beat, he stood in a chair to “draw” on the wall (with chalk, of course). When he got down, he told us not to say that he didn’t do demonstrations in class.....**Liese Faircloth '93**

The professors and their kindness, encouragement, and modesty....**Rose Cordero '01**

Professor Barbee making me feel welcome in second semester calculus. I was a transfer student coming into a class of about five or six students. I will never forget how close we all got and the study times together.
Phyllis Hammer Richardson '78

Going to Charleston for the regional MAA meeting in 1998....**Lyndsey Jessup Haywood '99**

Dr. Haworth took a group in an Elon van to Appalachian State University to discuss graduate schools. On the way back, we made a stop for someone in the group to bungee jump.....**Liese Faircloth '93**

Dr. Haworth’s Non-Euclidean Geometry exam. We walked in and he told us to write everything we had learned!...**Phyllis Hammer Richardson '78**

Dr. Haworth was one of the professors who went with a group of students to England for winter term. They took a side trip to France one day. Apparently there was too much to see in one day. Even though it was late in the day, they wanted to tour the Louvre. Since they only had about an hour before they had to be back at the airport, they stopped at the information booth in the Louvre and he asked, “Where’s the good stuff?”.....**Mike Stanley '86**

Dr. Francis giving me grief for leaving his class early to go to Elon softball games. We won the state championship that year.....**Phyllis Hammer Richardson '78**

Finding out from Dr. Todd Lee that he didn’t know all the answers....**Lyndsey Jessup Haywood '99**
(Actually, I only admitted to not readily remembering all the answers.....**Todd Lee**)

WEDDINGS, BABIES AND FAMILIES

- **Gerry Francis**, provost/vice president for academic affairs and former math department chair, is getting married August 10 in Elon's Whitley Auditorium. His fiancée, Laine Neese, is a Burlington native and UNC graduate who has lived in Charlotte for the past 15 years working for US Air. She recently moved back to Burlington.
- **Richard Haworth's** son, Carlisle, is working on his master's degree in applied geography at the University of North Carolina at Greensboro. His daughter, Cheryl, hopes to finish her PhD. in educational research methodology at UNC-G next year. She works for Tanglewood Research, focusing on grant writing.
- **Lisa and Jim Beuerle** are expecting their first child in late August...a girl! Lisa will be taking a maternity leave in the fall and expects to return for 2003 winter term.
- **Crista Coles** is getting married on July 13 in Bahama, North Carolina. Her fiancée is Sanjay Arangala, a native of Sri Lanka. He is a statistical consultant for SAS in Cary.
- **Janice Richardson's** daughter, Bonnie, will graduate from the University of North Carolina at Chapel Hill this spring in psychology. Her son, Paul, is a sophomore at Elon.
- **Helen Walton** has another grandson. Timothy Parke Walton was born on May 29, 2001, to Drew and Christina Walton, joining brother Matthew. The Waltons live in Rocklin, California. Her daughter, Charlotte, is an accountant for a Raleigh software company, and her younger son, Jeff, works for a planning consultant firm in Kannapolis.
- **David Nawrocki**, former member of the department, writes that he and his wife have another baby. Their third child, Allison Ethel Nawrocki, was born on July 7, 2001. She weighed 8 pounds and 1 ounce.

CHECK OUT OUR WEB PAGE

To find out the latest information about the Math Department, to see photos of our smiling faces, and to get our e-mail addresses and phone numbers, check our Web site at www.elon.edu/academics/math/default.asp.

Please send us news. If you respond, we will mention you in the next newsletter. We would love to hear from you even if you have replied in previous years (Mail to Helen Walton, CB 2277, Elon, NC 27244 or e-mail her at walton@elon.edu)

Name _____ Nickname _____

Year of graduation _____

Address _____

Phone: home _____ work _____

Occupation _____

Spouse's Name _____

Spouse's occupation _____

E-mail Address _____ Internet Home Page _____

A brief summary of your memorable moments since graduation:

Children and grandchildren: (include names, ages, and anything about them)

Hobbies and activities:

Favorite memories from Elon math classes:

COMPUTING SCIENCES CORNER

David Powell, chair

Computing Science is a rapidly changing and dynamic field. The Computing Sciences Department's students, curriculum and faculty have not only kept up with but are at the front of the technology curve. During the 2002-2003 year, the students have been at or near the front of other colleges and universities at the regional ACM contest, programming contests and end-of-year tests. The curriculum has expanded significantly, and the number of faculty has doubled.

The officers for the Elon student chapter of the Association for Computing Machinery for 2001-2002 were **Jeff Gariepy, Ryan Tighe, Andy Linn** and **Lakisha Powell**. The chapter financed the travel and attendance of four members to the annual Mid-Southeast ACM conference in Gatlinburg, Tennessee. **Jeff Gariepy, Ryan Tighe, James Graham**, and **Brian DeYoung** made the trip with Professor Dave Powell. The conference was attended by over 20 colleges and universities. For the first time in recent history, an Elon student, **Jeff Gariepy**, received the top award for the outstanding paper. **Brian DeYoung** has been elected chapter president for 2002-2003.

Elon sent two programming teams to the fall Mid-Atlantic Programming Contest held at Radford University. Team 1 was made up of **Brian DeYoung, Jeff Gariepy** and **Peter Neurohr**. Team 2 was comprised of **Ruth Brown, Elise Hewett** and **Beth Yost**. Fifty college and universities participated. The Elon teams did a great job and team 1 finished in the top 20 percent.

Each year all graduating seniors take a comprehensive test supplied by the Educational Testing Service. The test is made up of four major categories, and the scores provide an objective means for the university to compare its program against other universities. The graduating seniors did a fantastic job. They exceeded the national average in all four categories for the first time in six years and finished in the top 20 percent of all universities.

The field of computing sciences continues to have explosive growth with a high demand for graduates with degrees in computer science and information systems. The department has recently enhanced its program to offer Elon students additional degrees to enhance career opportunities. Beginning in academic year 2002-2003, the department will create a BS in computer science and a BA in information systems in addition to its BA in computer science. These new degrees will benefit all students by providing a much larger set of classes in Web technologies, databases, parallel processing and networks.

The department continued to expand with four new faculty members in 2001, and two new faculty will join the department next year. The new faculty, Beth Ellington, Joel Hollingsworth, Dave Powell, and Herb Schuette (joint appointment with the Business School), provide recent industry and graduate experience to offer more insight into the theory and application of the latest technologies that are changing the computing landscape.

- **Joel Hollingsworth** has a BS in CS from Appalachian State University, a MS in CS from Wake Forest University, and is finishing his Ph.D. in CS from The College of William and Mary. His research interests include operating systems (specifically distributed operating systems) and networking. His current research topic is kernel-to-kernel message passing and involves implementation of a reliable datagram message passing protocol within the operating system.
- **Beth Ellington** has a BS in Chemistry and Biology from University of North Carolina at Chapel Hill. She has an MBA from Elon University. She is currently enrolled in the Ph.D. Information Science Program at the University of North Carolina. Her education is complemented by industry expertise, including experience as a Quality Assurance Coordinator and Chief Financial Officer.
- **Dave Powell** has a BS from the U.S. Military Academy. He has a MS in Civil Engineering, an MBA, a Master of Engineering in Computer Engineering and a Ph.D. in Computer Science from Rensselaer Polytechnic Institute. He has significant experience in software development. He worked as a software engineer at General Electric Research and Development for 10 years. He co-founded a software development company, Engineous Software, and was vice president of software development for 6 years. His research interest is the application of artificial intelligence for improving the performance of search algorithms. In 2000, he was awarded his first U.S. patent for a heuristic search technique.

Jon Berry will be leaving Elon at the end of the year. He has accepted a tenure-track position at Lafayette College in Pennsylvania. **Michele Kleckner** is in her third year at Elon. She previously taught at Miami University in Ohio. Prior to teaching, Michele was a business owner and worked in industry for approximately 10 years. She currently serves as department representative for student internships. **Barbara Taylor** continues to assist teacher education students and faculty with integrating technology in teaching and learning in her role as Coordinator of Educational Technology for Teacher Education. She presented a paper last fall at the North Carolina Educational Technology Conference on designing accessible Web pages and has participated in several online courses this spring on Web page accessibility. **Vicki Hightower** continues to teach at Elon. **Bill Hightower** is enjoying his new position this year at High Point University, where he teaches in the Mathematics and Computing Science Department. He has been working on the quadratic assignment problem and plans to present his findings in Edinburgh, Scotland, in July. The Hightowers' two sons are both married. Karl is working as a computer consultant in Dallas, Texas, and Kenneth is finishing his doctorate in economics at the University of North Carolina at Chapel Hill.

DEPARTMENT HAPPENINGS

- **Skip Allis**, Department Chair, presented a talk at the International Conference of Technology in Collegiate Mathematics (ICTCM) last fall on how typing mathematics homework affects the students' work. He has found that students improve their work by the use of technology because they think more about what they are doing. He is working on a paper based on his dissertation dealing with classifying function subspaces. He serves as chairman of a subcommittee of the Curriculum Committee, which is examining the credit given to incoming student for their scores on AP and IB tests.
- **Crista Coles** serves on the subcommittee on common reading, which has selected *The Color of Water* as required reading for incoming freshmen. She was named to the Hook Professorship (see page 6) and was a co-advisor to the successful COMAP teams from Elon (page 1). She presented at the ICTCM conference on using Mathematica in linear algebra. She was invited by the math professors at Davidson College to give a talk at their bi-weekly colloquium on noise reduction, getting rid of errors using numerical techniques. This summer, she will grade AP statistics examinations in Nebraska for a week. In her spare time, she plays soccer in the Durham City League.
- **Richard Haworth** is the faculty advisor for the Intervarsity Christian Fellowship and was on the Educational Programs Committee to prepare for the SACS review. He is on the North Carolina Council of the Teachers of Mathematics (NCCTM) Board of Directors and is a member of the Executive Committee. He is also the Convention Services Manager with NCCTM. He continues to serve as the director of the area high school math contest.
- **Lisa Beuerle** is taking classes toward a doctorate in math education at North Carolina State University. She serves as co-advisor to Hillel. She is on the life selection committee for the Habitat for Humanity Chapter in Alamance County. This year, she became certified to teach in the public school system in North Carolina.
- **Alan Russell** serves on the General Studies Council, which is examining the core courses of the liberal studies component. He is in charge of the freshman core courses for the department and has been busy this year working on the changes described on the first page of this newsletter.
- **Jeff Clark** gave a talk at High Point University in March about using infinite numbers in calculus. He also presented at the Joint Mathematical Meetings of the American Mathematical Society-Mathematical Association of America (AMS-MAA) in San Diego on elementary modeling and the Olympics. He also spoke at career day in February at the B. Everett Jordan Elementary School on being a math professor. He spoke at the MAA Southeast Sectional Meeting in Atlanta in March on Elementary Groebner Base Theory. At Elon, he is vice-chair of the Academic Council and on the Academic Technology and Computing Committee. In the department, he is chair of a committee to revise the department's mission statement and chair of a committee to examine winter term course offerings. He will pilot a class in the fall on intermediate statistics, which will follow the new elementary statistics class (page1).
- **Janice Richardson** serves as president of the NCCTM Central Region. In this capacity, she was program chair for the NCCTM Central Regional Conference held on March 16 at Balfour Elementary School in Asheboro. She was the associate director of the Teaching Fellows program and has recently been named the new director. She worked with the Teaching Fellows this year to sponsor a Teacher Cadet day. Potential teachers from area high schools attended classes at Elon with the Teaching Fellows. She also helped to coordinate a ProTeam day at Elon, a program to get middle school students interested in college and to introduce teaching as a career. She serves on the Teacher Education Committee and the Teacher Education Advisory Committee.
- **Todd Lee** continues to serve as the math-science representative to Academic Council and as the Science Fellow director. At ICTCM in November, he gave a talk with Paula Young from Salem College about the use of Excel in Calculus projects. He gave an invited talk about creating and sustaining an undergraduate research program at the AMS-MAA annual meeting in San Diego in January. He also spoke on the use of Mathematica in logic at the sectional Project NExT meeting in Atlanta (a concurrent meeting with the Southeast Sectional MAA meeting) in March. He has been granted a sabbatical next fall to work on a series of four textbooks, co-authored by Paula Young, for Addison Wesley Longman. They are almost finished with the finite math book. He served as co-advisor to Elon's COMAP teams (see page 1). He taught for the sixth year at Governor's School West last summer, serving as chair of the Math Department and heading an academic fair.
- **Jim Beuerle** serves as the faculty advisor to Kappa Mu Epsilon, the mathematics honorary at Elon. He gave a talk at the Mid Atlantic Algebra Conference in March at Wake Forest University entitled "An Introduction to Nonabelian Tenson Squares." He is in charge of LaTeX in the department. and is authoring a Web site for statistics. He serves on the Student Life Committee.
- **Helen Walton** continues to write this newsletter. This is the sixth edition. She serves on the Phi Beta Kappa steering committee; Elon University is applying for Phi Beta Kappa status. This year she is on a Phi Beta Kappa subcommittee which is collecting data on the centrality of the arts and sciences at Elon.
- **Richard Dymmel** publishes the *Crimson and White Connection*, a free newsletter for college students that addresses moral issues, character, relationships, campus issues and spiritual life. There are currently over 300 subscribers spanning 14 time zones.
- **Bill Barbee** is chair of the subcommittee on Sportsmanship and Ethical Conduct as part of the self-study related to Elon's initial certification as a member of NCAA Division I.

STUDENT HAPPENINGS

Jeff Gariepy '02 will attend graduate school in computer science at Wake Forest University.

Jeanette Olli '03 and **Cheryl Borden '05** will do research for the admissions office this summer. Jeanette will try to design ways to predict the success rate of Elon students based on their high school records. Cheryl will look at predicting yield rates of prospective students who have received an offer of admission.

Erin Krupa '02 will attend graduate school in mathematics at Wake Forest University this fall.

Sharon Blatt '02 and **Amber Dennison '02** gave presentations at the Nebraska Conference for Undergraduate Women in February. Sharon spoke on the board game RISK, and Amber talked about the best way to maximize area in farm enclosures. Sharon submitted her research to the Rose Hulman Undergraduate Research in Mathematics.

Sharon Blatt '02, Amber Dennison '02, Erin Krupa '02, Justin Luckett '02 and Katie Park '02 gave talks at the MAA meeting in Atlanta. Their presentations were based on their senior research. There were only 10 student presenters at the conference, and five were from Elon! Elon has certainly established a presence at this conference.

Nick Harrison '02 plans to attend Pennsylvania State University this fall studying acoustics.

Justin Luckett '02 will work as a consultant for AON Consulting in Winston-Salem upon graduation.

Katie Iwancio '03 is engaged and plans to wed after graduation.

Julie Pelter '02 was selected as the NCCTM Central Region's outstanding math education student. Julie is the seventh Elon student to win this award since its inception in 1986. She will be married in June and plans to teach in Raleigh after graduation. She spent most of last summer in Russia.

Katie Park '02 has accepted a teaching position with the Wake County school system.

Lora Taylor '02 finished her degree requirements in December and is teaching at Piedmont High School near Charlotte.

The department's Academic Award was presented to **Julie Pelter '02** and **Jeff Gariepy '02**. **Sharon Blatt '02** won the department's Service Award.

CRISTA COLES RECEIVES HOOK PROFESSORSHIP

Dr. Crista Coles, assistant professor of mathematics, has been selected as the first recipient of the A. L. Hook Emerging Scholar Professorship in Science and Mathematics at Elon University. She will hold the rotating professorship for three years. The Hook Professorship was established by two former students of Elon College, Mr. Tommy Holmes and Mr. Harris L. Hedricks, to honor Dr. Alonzo Lohr Hook, a former professor of chemistry at Elon.

The purpose of the Hook Professorship is to support the development of faculty in chemistry, mathematics and physics who are in the pre-tenure or pre-professionalization stage of their careers. The professorship provides support for discipline-based scholarly pursuits and for engaging students in undergraduate research or special projects.

As a Hook professor, Dr. Coles took two students, Sharon Blatt and Amber Dennison, to the Nebraska Conference for Undergraduate Women in Research. Both students gave presentations there, and Dr. Coles worked with Sharon to prepare her research for publication. (see above article). This summer, she will work with students Jeanette Olli and Cheryl Borden to look at data from the admissions office (see above article).

Dr. Coles joined the Elon faculty in 2000. She earned a doctorate and a master's degree from the University of Cincinnati and a bachelor's degree from Allegheny College. The Hook Professorship will provide for one course release per academic year, an annual salary supplement and supporting funds for travel, equipment, supplies, and books. In addition, funds will be available to support the student research.

Congratulations to Crista!

NEWS FROM ALUMNI

Jay Allred '86 is the publisher of *Triad Golf Today* and *Triangle Golf Today*, two regional publications with a combined circulation of 60,000. He is former president of Carolina Golf Reporters, founding partner and vice president of the Triad Publishers Association, a board member of the Elon Athletics Foundation and a member of the Elon Alumni Executive Board.

Rose Cordero '01 is attending law school at the University of North Carolina at Chapel Hill.

Cindy Enloe Neff '99 received her master's degree from Wake Forest University in 2001

Liese Faircloth '93 works for AT&T Solutions in Durham. She has a set of twins, Aaron and Elizabeth, who have just turned 3.

Amy Curtis Hadwin '98 works in Human Resources at Elon University and is currently on maternity leave, welcoming a baby girl, Alyssia Quinn Hadwin, on May 1.

Lyndsey Jessup Haywood '99 graduated from Wake Forest University with a master's degree in 2001. Her thesis was entitled "Non-Linear Boundary Value Problems with Multiple Solutions." She married Darrin Haywood '97 in 1999.

Larry Hodges '74 has been named the new chair of the Department of Computer Science in the College of Information Technology at the University of North Carolina - Charlotte, effective August 1, 2002. Currently, Dr. Hodges is Associate Professor in the College of Computing and head of the Virtual Environments Group in the Graphics, Visualization & Usability Center at Georgia Tech. He is also co-founder of Virtually Better, a company that specializes in creating virtual environments for use in the treatment of anxiety disorders. Dr. Hodges received his Ph.D. from North Carolina State University in Computer Engineering in 1988. He also holds a M.S. in Computer Science from NCSU (1984), a M.A. in Religion from Lancaster Theological Seminary (1978), and a B.A. with a double major in Mathematics and Physics from Elon College (1974). Dr. Hodges' research and teaching interests include all aspects of virtual reality and 3-D Human-Computer Interaction. He is a Senior Editor of the journal, *PRESENCE: Teleoperators and Virtual Environments*, is on the editorial board of *Cyber Psychology & Behavior*, and is a member of the Steering Committee for the annual IEEE Virtual Reality Conference.

Jennifer Smith Lebruska '97 received a master's degree in applied science (applied mathematics and modeling) in 1999 and married Stuart Lebruska in August 1999. Stuart is an officer in the U.S. Coast Guard.

Phyllis Hammer Richardson '78 is a math instructor at Sampson Community College in Clinton, North Carolina. She received her master's degree from Campbell University and has won the excellence in teaching award from the Sampson Community College Foundation.

Amanda Sherman '98 is doing legal work for a law firm in Winston-Salem.

Ray Singletary '01 is teaching mathematics in Wake County.

Mike Stanley '86 works in Philadelphia for the Boeing Company in their military Aircraft and Missiles Division. He is a Senior Finance Analyst who supports business systems for the Rotorcraft programs: Apache, Comanche, Chinook, and V-22. He, his wife, Melissa, and five-year-old daughter, Alexandra, live in Delaware.

Ashley Trent '01 is attending graduate school at Texas Tech University in Lubbock, Texas.

Lori Tyler '92 is working on a Ph.D. in Education and Human Development (concentrating in math education) at Vanderbilt University.

Emily Viverette '94 attended Vanderbilt Divinity School and received her master's in divinity in 2000. She was ordained into the Christian Church and currently serves as chaplain resident in Nashville. She will be married in June and will move to Winston-Salem to pursue supervisory training at the Wake Forest Medical Center.

Daphne Wagoner '67 is a practicing Certified Public Accountant who owns her own firm in High Point. She and her husband, Doug, live in Thomasville.

Holly Weeks McDow '99 received her master's degree from UNC-CH and is teaching.

Kevin Winterstein '87 has started his own computer consultant firm, Tech-Stein, and lives in Burlington.