

Mathematics and Computer Science Newsletter

Spring, 1998 ♦ Issue 3

Ethics Event Held

The Department of Mathematics and Computer Science held a seminar entitled "Ethics: Living Responsibly in a Technological Age" on March 6, 1998. Seminar coordinators were Dr. Troy Riggs and Mrs. Pat Laffoon. Today's decision makers, scientists, and consumers face ethical issues that did not exist a decade ago. In the classroom, we seldom schedule time to address these issues. As a Christian institution, our department felt compelled to initiate a discussion concerning the responsible use of a rapidly developing technology.

Speakers included Dr. David Gushee (Union University) who gave a talk entitled "Technological Change and Christian Ethics: Friends or Enemies?" and Dr. Marlene Campbell (Murray State) whose talk was entitled "Ethics: Mandate or Choice". We also had internationally known ACM lecturer Dr. Donald Gotterbarn (ETSU) delivering an ACM lecture following a meal in Coburn Dining Room. Some students received software for door prizes. Our department is deeply appreciative for the support received for this seminar by Dr. Carla Sanderson, Provost, and the Association of Computing Machinery (ACM) Lectureship Series.

CS C students getting a taste of J ava

The CSC department has decided to replace Pascal in the introductory programming classes (CSC 111 and 112) with Java. This will take effect next fall, but several juniors and seniors already participated in a pilot project where they studied the new language in a special topics class. Java makes a good introductory language because it is object-oriented (without some of the compromises and pitfalls of C++), it is designed for event-driven GUI programming, and it has industry

relevance. Several commercial IDEs are available to students through grants the department received from Microsoft, Borland, and IBM, for Visual J++, JBuilder and Visual Age for Java, respectively.

2nd Annual Science and Mathematics Alumni Conference

As part of the Homecoming Festivities, the Departments in the Science and Mathematics areas hosted the *2nd Annual Science and Mathematics Alumni Conference on February 20th*. The activities started at 2 pm and concluded with an alumni dinner and awards presentation in the evening. The afternoon session consisted of seven of our alumni making fifteen minute talks on what they had done since graduating from Union and what they were currently doing. These sessions were extremely interesting and our current students received these testimonies as highly motivational for them to continue to pursue degrees in the Sciences and Mathematics. The speakers were *Mike Smith '72, Biology*, Mercer University School of Medicine; *Wayne Wofford '73, Biology*, Union University; *Gregory Orr '91, Computer Science*, Hub City Group; *Gary Grisham '75, Mathematics*, Union Planter's Bank; *Blake Watkins '94, Chemistry*, University of Georgia; *Jerry Wilson '88, Biology*, medical practice, Milan; and *Mike Rodrigues '86, Computer Science*, Federal Express. *Gregg Engstrand '88, Mathematics*, Covington Water Treatment Facilities, was unable to speak due to circumstances beyond his control.

At the alumni dinner, *Dr. Joseph Tucker* received the *Former Faculty Award*. Dr. Tucker remained in the Jackson area after his retirement and has taught part-time at Union on occasion. The *Distinguished Alumni Award* went to *Dr. Lisa Williams Rogers '83, Biology*.

Dr. Rogers is a physician in Jackson and is very active in church, community and Union life.

Dr. Charles Baldwin, Professor and Chair of Department of Chemistry and Physics, gave an interesting talk after dinner on some history of Union University by showing slides of some 1800's news clippings. It was an excellent day and we hope to see many more of you at our 3rd Annual Science and Mathematics Alumni and Friends Dinner in 1999.

Calculus & Mathematica

All students who are beginning the calculus sequence (MAT 211, 212, or 213) will have an opportunity to attend introductory sessions on using Mathematica 3.0. *Mr. Dwayne Jennings*, Associate Professor of Mathematics and Computer Science, will provide instruction at the beginning of the fall '98 and spring '99 terms to give students a "jump start" in the use of Mathematica 3.0. One goal is for Mathematics professors to be able to spend more time teaching calculus with Mathematica and less time on foundational computer and Mathematica skills. Another goal is for students to have a better idea of how the system works and to be better equipped to troubleshoot as needed. Offering these additional sessions is an experiment to find a better way to serve our students. Details on scheduling these sessions will be announced at a later time.

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Assistant Chair Position

Dr. Matt Lunsford will serve as the department's first assistant chair. His responsibilities include providing administrative support and leadership for issues that are math-discipline specific, such as course scheduling, curriculum updates, textbook selections, and assessment. He will also serve as liaison between the Chair and the math faculty.

Math & CS C Dept Welcomes New Faculty

The Mathematics and Computer Science Department welcomes Mr. **Stephen Brinton** to Union as Assistant Professor of Computer Science. Stephen holds a Masters in Computer Science from the University of North Carolina, Charlotte, a Bachelors in Computer Science and Psychology from Gardner-Webb University, and a Master of Divinity from Asbury Theological Seminary. He is currently serving as the pastor of Girad Charge, United Methodist Church in Girad, GA. and will be joining the computer science faculty in August '98.

Who's Who Among America's Teachers

Matt Lunsford, Troy Riggs, and G. Jan Wilms were listed in the Fifth Edition of Who's Who Among America's Teachers, 1998. Nominations honor 5% of the nation's teachers and are made by former students who have been included in "Who's Who" or "The National Dean's List".

Departmental Promotions

Congratulations to **Stephanie Edge** on her promotion to Assistant Professor of Computer Science and **G. Jan Wilms**, Associate Professor of Computer Science, on receiving tenure.

Proposal Accepted

Mr. Chris Hail's (Assistant Professor of Mathematics) dissertation proposal, "The Effects of the Use of Multiple Representations on Middle School Students Understandings and Perspectives of Prealgebra Concepts", has been accepted by his committee at the University of Kentucky. He plans to gather data in the fall.

Departmental Changes

Dr. Troy Riggs, Assistant Professor of Mathematics, has accepted a position as an actuary at American Memorial Life Insurance Company in Rapid City, South Dakota. Troy has been at Union for the past five years. We wish him well.

Mrs. Emily Dunn, Assistant Professor of Computer Science, will continue to work as a computer consultant. Emily has served here at Union for the past two years. She will also be busy as a new mom.

Mrs. Pat Laffoon, Assistant Professor of Computer Science, will be taking a one-year leave of absence due to illness in her family. Our prayers are with her family. We look forward to her return.

New Additions to the Department

Addison Grace Dunn was born March 10, 7 lbs. 3 oz., 20 1/2 inches. Proud parents are Brian and Emily Dunn.

Caleb Ray Hail was born October 11, 1997, 7 lbs. 3 oz. 21 1/2 inches. Proud parents are Chris and Kelli Hail.

FACULTY PRESENT IN DEPARTMENTAL COLLOQUIUM SERIES

The Department of Mathematics and Computer Science continued its colloquium series into the fall of 1997. On September 10, **Stephanie Edge**,

Assistant Professor of Computer Science, presented a talk entitled "Who am I and where do I fit? Personalities in the Workplace." Topics discussed included why study personalities, the origin of personality theory, the four basic personality types, and the strengths and weaknesses of each personality in the workplace.

In October, **Dr. Matt Lunsford**, Assistant Professor of Mathematics, spoke on "The Mathematics of Identification Numbers". His talk centered around check digit schemes that are currently being used in the workplace. In particular, the schemes used by book publishers (ISBN), credit card companies (IBM), manufacturers (UPC), and the Tennessee Division of Motor Vehicles (driver's license) were discussed. Each of these schemes uses some form of modular arithmetic to construct an identification number. The ability to detect single errors and transposition errors in an identification number is one of the primary goals of each of these schemes.

Faculty Conferences

Associate Professors **Richard Dehn and Dwayne Jennings** attended the annual conference of the Tennessee Mathematics Teachers Association, April 24-25, at Austin Peay State University in Clarksville, TN. Current topics and issues in mathematics education were discussed.

G. Jan Wilms, Associate Professor of Computer Science, attended Sun's Java Application Programming in Nashville, September 18, 1997. He also attended the CCCU Technology Conference at John Brown University, October 5, 1997. On November 6, 1997, Dr. Wilms presented a talk on Client Server programming in Java at the Mid-Southeast ACM Conference in Gatlinburg, TN. He was also a session chair and graduate paper judge.

Stephanie Edge, Assistant Professor of Computer Science, attended the Christianity in the Academy Conference at the University of Memphis, March 27. She also attended the Syllabus Press Regional Workshop in Atlanta, GA, April 24.

Dr. Troy Riggs, Assistant Professor of Mathematics attended the 1998 Southeastern Sectional Meetings of the Mathematical Association of America, March 13-14, in Charleston, SC. He presented a talk entitled "Using the Software NonEuclid to Investigate Hyperbolic Geometry." Dr. Riggs implemented NonEuclid in MAT 413 College Geometry in the fall of '97. This software was developed at Rice University to assist students with making constructions in hyperbolic geometry. Both student performance on the final exam, and student evaluations indicated that the software was very beneficial. Dr. Riggs also participated in the Short Course "A Hands-on Discovery-Based Approach to Geometry." This was a three hour long workshop on teaching spherical geometry using physical models and a discovery-based approach.

Mr. Don Richard and Dr. Matt Lunsford attended the 77th Annual Meeting of the Southeastern Section of the Mathematical Association of America in Charleston, SC, March 13-14. Don Richard participated in the short course "Computer Laboratories in Probability and Statistics for Math Majors". Dr. Lunsford spoke on "Using Permutations and Finite Fields in a Conceptual Approach to Abstract Algebra".

Congratulations !

The Major Field Achievement Tests were given in November 1997 to the senior students who are majoring in mathematics and/or computer science. Sixteen students (9 mathematics and 7 computer science) took this test. These tests are used by the department to assess the departmental programs. This year, the top score in mathematics was made

by **Amy Ginn** and the top score in computer science was made by **Micah Merillat**.

Computer Science Students Place First In Cake Decorating Contest for Homecoming '98

Five computer science students decorated a section of the Union Homecoming 98 cake to win first place award for the Union University Student Chapter of ACM (Association of Computing Machinery). The students used candy and graham crackers to create a mock computer, complete with keyboard, monitors, mouse and connecting cables. Contributors were Keeley Woods, Amy Ginn, Michael Adams, Eddie Childers, and Johnny Earnest. To see their creation, please look at our departmental web page at <http://www.uu.edu/dept/matcsc/depmain.htm> or the bulletin board on the B-corridor.

NINE MATHEMATICS SENIORS PRESENT IN SEMINAR COURSE

Nine senior mathematics majors presented their individual research projects to the department faculty on December 6 and December 13 in the department's seminar room. Each senior was required to use the software application PowerPoint in his presentation. The presentations were given in partial fulfillment of the requirements for the Mathematics Seminar course. This course is offered each fall semester and is required of all mathematics majors. In addition to the presentation, each student submitted a research paper on his chosen topic. The following is a list of the students that presented this year and the titles of their research projects.

Mike Adams - *Topology*

Casey Allen - *Bezier Curves*

Amy Ginn - *The Gamma Function*

Sam Green - *Sorting Methods*

Jennifer Murrah - *The Formation of Rainbows*

Amber Simpson - *Theory of Error-Correcting Codes*

Allison Smith - *Mathematical Solutions of the Rubik's Cube*

Alicia Tull - *Carl Friedrich Gauss*

Kim Whitt - *The Diagonalization of Matrices*

FACULTY AND STUDENTS ATTEND REGIONAL MEETINGS

Mathematics

Mathematics majors **Jennifer Murrah** and **Allison Smith** presented their senior seminar projects at the Regional Convention of Kappa Mu Epsilon hosted by Eastern Kentucky University in Richmond, KY. Allison presented "Mathematical Solutions of the Rubik's Cube" and Jennifer received the best undergraduate talk award for her presentation entitled "The Formation of Rainbows". Mathematics majors **Lori Davis** and **Mandy Davidson** and faculty members **Dr. Matt Lunsford** and **Mr. Chris Hail** also attended. Kappa Mu Epsilon is a national mathematics honor society.

Computer Science

Five CSC majors presented talks at the Mid-Southeast ACM Conference in Gatlinburg, TN on 11/6. These presentations were in partial fulfillment of a requirement for the Senior Seminar class, where students worked on projects for the Jackson-Madison County General Hospital. Congratulations to Eddie Childers for winning 3rd prize for best undergraduate talk.

Josh Duggin & Allison Smith: *Development of a*

Pilot Intranet Implementation.

Johnny Earnest: Implementation of the Java Database Connectivity Advanced Programming Interface.

Micah Merrillat: Automating Employee Time Cards and Reports using Java.

Matt Walker: Developing a hospital internet web site and intranet system.

Eddie Childers: PC security and virus protection.

Computer Science Students Attend Regional ACM Contest

Six Union students attended the ACM Mid-Central Region Programming Contest which was sponsored by IBM on November 1, 1997 at Murray State University in Murray, Kentucky. **Mrs. Pat Laffoon**, faculty sponsor of Union's ACM student chapter, and **Mrs. Emily Dunn** accompanied the students and served as judges for the contest. Union's team A was comprised of **Stefan Antoniou (Jr)**, **Brad Bell (Jr)**, and **Amy Ginn (Sr)**. **Team members of Team B were Eddie Childers (Sr)**, **Gary Lockhart (So)** and **Matt Walker (Sr)**. The Regional Contest challenged our teams of programmers to solve at most six programming problems in a period of five hours. The problems varied in difficulty. Teams were able to present solutions for each problem in their choice of either Turbo Pascal or Turbo C/C++. The Regional Contest offered two distinct Contest Divisions: Division I (in which any team may compete) and Division 2 (for undergraduate student teams only). The top two teams from different schools (but not necessarily from different Contest Divisions) represented the Mid-Central Region at the Contest Finals held during the 1998 ACM Contest

Finals in Atlanta, Georgia. For more information, see the Web site at <http://science.smsu.edu/~acm/old1index.html>.

KME News

The Tennessee Gamma Chapter of Kappa Mu Epsilon held this year's annual spring banquet on April 23. New initiates included Dr. Jan Wilms, Chair of the Department of Mathematics and Computer Science; and student initiates Lindsey Crain, Amy Ginn, Jenny Middleton, James Mosley, Cathie Scarbrough, Hannah Shelby, and Stefan Antoniou. New officers were elected. The 1998-1999 Officers are Lori Davis, President; Mandy Davidson, Vice President; Lindsey Crain, Secretary; Cathie Scarbrough, Treasurer; Dr. Matt Lunsford, Faculty Sponsor; Mr. Don Richard, Corresponding Secretary.

Math & CS C S tudents J ob Placements & U pdates

Brad Bell, CSC JR, has accepted a job with Murray Guard, Inc. in Jackson, TN. He will work as a PC Support Specialist and will assist in computer & network troubleshooting and inter/intranet design.

Eddie Childers, CSC JR, has accepted a summer internship opportunity at Executive Finance in Memphis, TN as the network manager. His job will include setting up a network & accounting software, and trouble shooting PCs.

Josh Duggin, '98 CSC, has accepted a position with the Porter-Cable Corporation of Jackson, TN. Josh will be a PC Support Specialist. His responsibilities with involve network administration, hardware/software troubleshooting, and end-user support.

Johnny Earnest, '98 CSC, has signed with Hewlett Packard in Cupertino, California. He will be working as a Support Engineer in the Capacity Planning Center Division doing performance testing, database tuning, and mock implementation for customers.

Amy Ginn, '98 Math, has been accepted in the Mathematics program at University of Missouri in Columbia, MO. She will be working on a M.A. in Mathematics and later a Ph.D. She has received a teaching assistantship position with the university.

Allision Smith, '98 CSC, has accepted a job with Hub City Blueprint, Inc. in Jackson, TN. Her responsibilities include Autocad technical support and networking Autocad systems.

Matt Walker, '98 CSC, has accepted a job with Knowledge Link of Jackson, TN, an Internet development company. His will be the Director of Web Page Maintenance, and he will be in charge of making updates and changes to client Web pages as requests are made. He will also be doing general Web development and CGI programming.

Dee Dee Babcock, '97 Math, is working on a doctorate in Medical Chemistry at the UT Memphis Medical School.

John Buller, '97 CSC, has accepted a position at AXON Corp, a software company that targets intermediate sized trucking companies. He will be doing programming, providing support, and traveling around western Canada.

Jennifer Carter, '97 Math, is working on a doctorate in Biology at the University of Virginia.

John Cross, '97 Math, is teaching math in the Neelyville School System in Poplar Bluff, MO.

Scott Dossett, '97 CSC, is working as a software engineer at Alydaar Corporation in Greenville, SC.

Kevin Hinton, '97 Math, is completing his final year teaching math at West Carroll High School in Atwood, TN. Kevin will be returning to Millington with his wife in the fall.

Michael Laffoon, '97 CSC, is working at

Federal Express in Memphis, TN. Michael works in the Department of WorldWide Revenue and Clearance. He is programming in COBOL and serving as a LAN representative.

Jonathan Miller, '97 CSC, is working on a Masters in CSC at Mississippi State University.

Cindy Osborn, '97 Math, is teaching math at Brighton High School in Brighton, TN.

Chad Lewis, '97 Math, is teaching math and coaching cross country and track at Briarcreast Christian School in Memphis, TN.

Sherry Lin, '97 Math, is working on a Masters in Mathematics at the University of Florida.

Roger Niccum, '97 CSC, is working at Karmak, Inc. in the Research and Development Center as a software developer. Karmak is located in Carlinville, IL.

Shannon Powers, '97 CSC, is working for the City of Jackson, TN as a PC Support Technician.

Summer Jobs

Jeb Brimm, CSC SR, will be working at Challenger Systems in Alamo, TN. Jeb will be converting programs into Visual Basic. He will also be building and servicing computers.

Alicia Hite, CSC JR, will be working at Vanguard Contractors in Paducah, KY. She will customizing and entering database information. She will also be working with customer accounts.

Billy Mauldin, HIS JR, has accepted a summer position at Pictsweet in Bells, TN. He will be working as a Year 2000 PC Analyst.

Keeley Woods, CSC SO, will be working at the Henderson County Highway Department in Lexington, TN. She will be working with an accounting program and in inventory control.

Build On A Firm Foundation

by: Josh Duggin, '98 CSC

As a college senior who is (anxiously!) anticipating graduation, my thoughts and energies are naturally geared towards the future and that which it holds. It seems that everyone's advice for me is to "build" something. I have heard inspiring speeches and lectures to "build for the future," and to "build on the foundation" that my education has "laid." This advice is sound, but the key to building for the future is not the materials at hand, but the foundation upon which the future is being built. A certain Jewish Builder that I know has this to say about the matter:

Therefore everyone who hears these words of Mine, and acts upon them, may be compared to a wise man, who built his house upon the rock. Matthew 7:24

It seems that this notion of "building" is only directed to the youth and young adults in our society, but each person, no matter their age, should closely examine their foundation. If I understand the words of Jesus correctly, we are fools if we build on anything other than God's Word and its principles.

"That's right," we say. But, do we really understand?

For you see, the foundation of a building affects the entire structure over time. At first, what may seem to be a solid foundation actually turns out to be nothing but sand, and the building begins to sink. What are we building on today? Sadly, it seems that many around us, including Christian friends, build their entire existence and happiness on their money and material possessions or the gaining of some social status. "Oh, no! I would never do that," you say. Are you more concerned with the bills and expenses that you must pay this week than helping the truly poor among us? Are you so concerned with your own well being that you neglect the needs of those in your own family? These are but a few symptoms of a sinking building.

Unfortunately, it is easy for us to fall into this trap of basing our lives and our future on this earth; God expects nothing less from His stewards. But, we must guard against the danger of building on the wrong foundation by constantly returning, with every breath, every decision, every thought, to the words of our Lord and His will for us. If we will do this, the things that we build will last for eternity. Have you ever noticed how those Christians who are faithful to study and pray and live each day in the Father's will seem unshakable? It's not anything that they have done; it's their foundation. And they're building as they go, not standing around, blankly staring into the future, waiting for something to happen.

And in all this, remember that none of us build on our own; Jesus is in the business of building lives exactly to His Father's blueprints. As you look to the future, no matter who you are, or where you stand in life, carefully examine your building program. Is your foundation rock-solid, or is it sinking sand?

And the rain descended, and the floods came, and the winds blew, and burst against that house; and yet it did not fall, for it had been founded upon the rock. Matthew 7:25