

# Mathematics and Computer Science Newsletter

Summer, 1997 ♦ Issue 2

## Microsoft Grants to UU

The department received a Microsoft Instructional Lab Grant for the '96-'97 academic years for software licenses valued at \$59,720. Dr. Wilms applied for the grant primarily to benefit CSC 355 (Programming Languages) and to equip the new CS *advanced systems* lab in C-59, but the grant license permits use of the software also in other courses and labs.

The way the grant works, Union University is required to purchase one retail copy of each package, and Microsoft then permits us to install the software on 15 different machines. Since the intended use is for a course in programming languages, most of the software consists of compilers (Visual C++ and Visual Basic) and utilities (MS Project and SourceSafe). These are state-of-the-art tools used by professional programmers, thus not only allowing our majors to learn the theory, but also giving them marketable skills.

Software is constantly changing, in an endless effort to catch up with advances in hardware and new operating system APIs, and the MS instructional grant (which includes licenses for Windows95 and WindowsNT) gives our department access to tools our limited computer budget would otherwise not allow us to consider.

Included in the grant is maintenance until June '98, meaning that we automatically qualify for upgrades during that period should new versions come out. The grant is also renewable, and Dr. Wilms has written an application for J++ (Microsoft's version of Java) for possible use as a replacement of Pascal in CS1 and CS2. This grant was approved and is valued at \$21,797, which includes copies of MS Frontpage.

## Dr. Tucker Scholarship

Would you like to make a contribution to Union University that

would directly benefit the Mathematics/Computer Science Department? If so, consider designating a gift to the Dr. Joseph Tucker Scholarship Fund.

Many of you have fond memories of Dr. Tucker who served Union from 1969 to 1990 as a Mathematics Professor and department chair. He officially retired in 1990, but on occasion agrees to come back for short teaching assignments. Upon his retirement he established a scholarship specifically to aid students majoring in the areas of Mathematics or Computer Science. The fund is designed to grow over the years with only the interest earned awarded as scholarship. The fund presently provides about \$500 per year in scholarship. We would like to see it grow to the point where it yields at least \$1,000 annually.

In order to be eligible for the scholarship a student must be a junior or senior, a mathematics or computer science major, have a grade point average of 3.0, and be active in the department as a member of either Kappa Mu Epsilon or Association of Computer Machinery. A recipient of this scholarship who is a junior is eligible to reapply in his/her senior year. This scholarship is not controlled by the Math/Computer Science Department, but the department makes recommendations to the Financial Aid Committee for their final selection.

If you would like to make a donation that will have an impact on our department while honoring one of Union's most beloved former professors, consider investing in our future mathematics/computer science students through the Dr. Joseph Tucker Scholarship Fund.

## Union University's Home Page

<http://www.uu.edu/>

Check out the most up-to-date information about Union University on-line. Union's Homepage contains information ranging from alumni ("The

Unionite", Alumni E-mail/Homepage Directory, etc.) to sports information (up-to-date scores and descriptions of current teams). You can also find a complete catalog of courses offered and a variety of other areas that define Union.

Take a look and enjoy!

## Math/Computer Science begins Colloquium Series

The Department of Mathematics and Computer Science established a new colloquium series in the Fall of 1996. The monthly series allows members of the department to share recent scholarly pursuits with colleagues.

Dr. Matt Lunsford, Assistant Professor of Mathematics, presented a talk, entitled "Using the History of Mathematics in Undergraduate Courses", based upon minicourses that he had recently attended in Asheville, NC and Orlando, FL. The discussion included an overview of the history of mathematics from the Greeks to the 19th century as well as reasons for including more history in existing undergraduate mathematics courses. The possibility of offering an undergraduate course in the history of mathematics was also mentioned.

Dr. Troy Riggs, Assistant Professor of Mathematics, spoke on "Actuarial Science". Dr. Riggs had recently attended a conference on this subject in West Virginia. In his talk, Dr. Riggs presented an overview of the actuarial science profession. He discussed the employment opportunities available in the profession and the relationship between actuarial science and mathematics. The colloquium also included a presentation of the video "Actuaries at Work".

Mr. Chris Hail, Assistant Professor of Mathematics, led a discussion on graphing calculators and their use in undergraduate mathematics courses.

Mr. Dwayne Jennings, Associate Professor of Mathematics, presented an

introduction to the latest version of the computer algebra system *Mathematica*. The department currently uses *Mathematica* in its Calculus, Differential Equations, Numerical Analysis, and Linear Algebra courses.

Dr. Jan Wilms, Associate Professor of Computer Science, presented a session on creating web pages. He demonstrated the basics of HTML programming, including frames, animated GIFs, and Java (script) applets. He showed several examples of how this medium can be used to enhance a course, from posting grades to making available Powerpoint lecture notes.

## ***Mathematica 3.0 Comes to Union University***

Mathematica 3.0 is the first major new version of Mathematica to be released in five years. The department has acquired copies of the new version for the mathematics professors in the department and for the C-3 Macintosh Lab through a continuation of Wolfram Research's Educational Grant Program. Several years ago the department was successful in receiving an educational grant from W.R.I. Inc. which allows the University to purchase the software at a significant discount from retail.

The new version of Mathematica has many new features; however, we will enumerate only a few below:

- The notebook front end has been redesigned to include mathematical typesetting. Mathematical expressions can be entered in traditional two-dimensional form. They can be edited and sent to the kernel for direct evaluation.
- In version 3.0, a notebook is an expression. Notebooks are thus active documents.
- The user can generate custom buttons, palettes, and hyperlinks to execute Mathematica commands and reference appropriate documentation.
- The Help Browser is more powerful. The user can browse hypertext-based documentation or search a master index.

Many new features are incorporated into the new version related to numerical

computation, algebraic computation, mathematical functions, graphics, programming, standard add-on packages and others.

Since Mathematica was first released in 1988, its user base has grown steadily to above one million users. Mathematica has become a standard in a great many organizations, and it is used today in all of the Fortune 500 companies, all 15 major departments of the U.S. government, and all of the 50 largest universities in the world.

## ***New Department Chair***

Dr. Jan Wilms has been selected as the department chair for Mathematics and Computer Science. On December, 1995, he completed his Ph.D. in Computer Science at Mississippi State University in Natural Language Processing, a specialty of Artificial Intelligence. He is a native of Belgium and holds a masters degree from the University of Mississippi in English and Computer Science. In January '97, he was promoted to Associate Professor.

He succeeded Mr. Dwayne Jennings, Associate Professor of Mathematics, who served as department chair for 4 years. Our thanks and appreciation go out to Mr. Jennings for the excellent job he did.

Also, we would like to thank Dr. Matt Lunsford, Assistant Professor of Mathematics, who serves as Mathematics Curriculum Coordinator.

## ***ACM Regional Fall Conference***

Four of our computer science majors made a presentation at the Mid-South Association for Computing Machinery (ACM) Fall Conference, which is held annually in November in Gatlinburg, TN. Accompanying them were professors Stephanie Edge, Pat Laffoon, and Jan Wilms. The latter two both chaired a session of papers.

Shannon Powers gave a presentation entitled "Garage Virtual Reality" in which he described modifying a Nintendo PowerGlove for the PC platform, to act as a six-dimensional joystick. He explored creating an interactive virtual world using

Borland's C++ linked with the AVRIL freeware program.

John Buller presented "Care Center Comes Up To Speed" in which he discussed his project of porting/modernizing a database of the Center for Adult Learning from dBase III+ to Microsoft Access. He used the forms, queries and report features of Access to make the database more user-friendly to the Care staff.

Scott Dossett talked about a project he authored with another senior, Roger Niccum: "Graphics/Multimedia Applications with an Emphasis on Game Programming with the DirectX SDK". By developing their own game, Scott and Roger demonstrated that the availability of the DirectX Software Development Kit has made graphical game programming for Windows possible for non-professionals.

The projects and presentations were in partial fulfillment of the requirements of CSC 495 (Senior Seminar) in which all four students were enrolled during the Fall of '96. Their presentations were built using PowerPoint and converted to slides using the equipment of the MultiMedia lab in the library. The files can be viewed on the WWW at <http://www.uu.edu/union/academ/math>.

## ***Keeping CSC Current Changes in Curriculum***

The department is constantly assessing the course offerings for CS majors in an attempt to keep up with technology changes and industry trends. We do this by polling recent graduates, by monitoring similar programs at other schools, and by keeping up with the ACM guidelines.

In '93-'94 the major was increased to 36 hours by requiring all students to take the C Programming Language (CSC 305), previously offered as an elective (CSC 395). This course became a prerequisite for several other upper level classes like Programming Languages (CSC 455) and Operating Systems (CSC 425) which require C for lex/yacc and Unix programming respectively.

Two years later, the requirement for CSC 498 (senior seminar) was added,

which brought the number of hours to 37. This seminar prepares the students for the national Major Field Achievement Test, and requires them to work at an independent project involving new skills. This project is then presented by the student at a regional conference (see Gatlinburg article).

In '96-'97 the department added CSC 365: Data Communication and Networking. A lab was created in C-59, consisting of an independent Novell LAN and networked Linux boxes. (This lab also houses several powerful Apollo workstations donated by HP, used for CSC 425, Operating Systems). The total number of hours for the major remains at 37 because CSC 365 replaces CSC 212 (COBOL II), which is no longer offered.

Currently the department is looking at alternative languages for the CS1 and CS2 courses, to replace Pascal. During the Fall '98 Java will be offered as an elective, in an experiment to test its viability as an intro programming language.

The current requirements for CS majors and minors can be found online at <http://www.uu.edu/union/academ/math/courses>.

## ***Professors Coach Local High School***

Dr. Troy Riggs and Dr. Matt Lunsford coached the Jackson Central-Merry High School Academic Decathlon Team on the mathematics portion of the exam for the last several years. JCM is Union University's Partner in Education. Dr. Lunsford stepped down due to his Mathematics Coordinator duties, and this year Dr. Riggs was assisted by Chad Lewis '97, a senior mathematics major.

We were pleased to see the team go to the national competition in Utah where they took several awards.

## ***Eight Seniors Present in Seminar Course***

Eight senior mathematics majors presented their individual research projects to the department faculty on

Saturday, December 7. The presentations were given in partial fulfillment of the requirements for the newly created Mathematics Seminar course. This new course is offered each fall semester and is required of all mathematics majors.

The presentations took place in the department's new seminar room C-58. The room is equipped with a Power Macintosh computer and a state of the art computer/video projection system. Each senior was required to use this new technology in their presentation. The students created slides for their talks using the computer software application PowerPoint. These slides were then incorporated into their oral presentations using the available technology. This combining of verbal and computer skills yields a highly effective and impressive method of communication.

In addition to the presentation, each student submitted a research paper on their chosen topic. The following is a list of the students that presented this year and the titles of their research projects.

- J. B. Allen - **The Importance of Secrets: A Look at Cryptography**
- John Cross - **Percolation and the Renormalization Process**
- Ben Hickey - **Mathematical Modeling of the AIDS Virus**
- Kevin Hinton - **Mathematical Modeling**
- Chad Lewis - **Fermat's Last Theorem**
- Sherry Lin - **Sound Waves**
- Cindy Osburn - **Contributions of Sir Issac Newton**
- Michele Rohde - **Queuing Theory**

## ***So Someone Hired Those Students as Teachers?***

Chris Hail, Supervisor of Mathematics Student Teachers, is tracking Union graduates who teach Mathematics at the middle and high school levels. New job placements include:

- Sandra Bain - Ripley H. S. in

Ripley, TN.

- Molly Durrance - Bradford Middle School in Bradford, TN.
- Jennifer Fuller - Brownsville Middle School in Brownsville, TN.
- Chris Taylor - Gallitin H. S. in Gallitin, TN.
- Kevin Hinton - West Carroll High in Atwood, TN
- John Cross - Neelyville School System, Poplar Bluff, MO
- Chad Lewis - Briarcrest Christian School, Memphis, TN (he is also coaching cross country and track)
- Cindy Osborne - Brighton High School in Brighton, TN

Congratulations to you all!

Teachers, please assist us in updating our records. We would like to hear from you.

*Mr. Chris Hail*  
*Assistant Professor of Mathematics*  
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## ***1997 Student Awards***

At the Spring Banquet, awards for outstanding mathematics and computer science achievements were recognized. The recipient of the Mathematics Award for Excellence was presented to Kevin Hinton '97. He accepted a job teaching mathematics and physics at West Carroll High School in Atwood, TN. The student scoring highest on the Mathematics Field Achievement Test was J.B. Allen. He is continuing studies at Union with plans to graduate in spring '98. Shannon Powers '97 was the high scorer on the Computer Science Field Achievement Test. He is currently looking for a job in the computer science field.

## ***CSC Students Compete***

In November, 1996 Computer Science students competed in their first programming contest at Murray State University. It was the Central Regional ACM Programming Contest and had competitors from Southern Illinois University, Bethel College, Tennessee Tech, along with many other

universities.

Our students learned the importance of teamwork as the competition was team programming. Competitors were Scott Dossett, Brad Bell, Johnny Earnest, Micah Merrilat, Shannon Powers, and Jon Gibson.

The students each received Microsoft Visual J++ Professional Edition Software for participating. The fighting spirit emerged as they look forward to next years programming contest.

## *Association of Computing Machinery*

ACM Student Chapter opened with a fall cookout at the home of the sponsor, Mrs. Pat Laffoon. Fall presentations included Scott Dossett discussing Java programming on the Internet. Union University's missionary in residence, Steve Babcock, presented the role of technology in the mission field where he serves as missionary in West Africa. Oliver Dossman presented the state-of-the-art computer and broadcasting technology used in Quito, Ecuador at the HCJB Radio Station (Heralding Jesus Christ's Blessings) where his parents serve as missionaries. The highlight was a spring field trip in April to CMC in Corinth, Mississippi where Micron Computers are assembled.

Plans for the new semester include the inauguration of a computer programming club.

## *New Faculty Update*

Mrs. Emily Garrett Dunn came to Union in the Fall of 1996 as an Assistant Professor in Computer Science from Federal Express in Memphis, where she worked as a technical advisor in International Marketing. Ms. Dunn completed a masters in Computer Science from University of Texas at Dallas and a Bachelor of Science in Mathematics and Computer Science from Union University. Emily is married to Brian Dunn who is on staff at Union serving as a P.E. teacher and women's

softball coach.

Ms. Stephanie Edge joined Union University in the Fall of 1996 as an Instructor in Computer Science from Gordon College in Barnesville, GA. Ms. Edge holds a masters degree in Computer Science from Georgia State University and a Bachelor of science in Mathematics/Computer Science from State University of West Georgia. She is currently working on a Master of Divinity degree from Southern Baptist Theological Seminary in Louisville, KY.

Mr. Chris Hail joined the faculty as an Assistant Professor in Mathematics in the Fall of 1995. He earned a B.S. degree in mathematics from Campbellsville College and an M.A. in mathematics education from the University of Kentucky, where he is ABD seeking an Ed.D. in mathematics education. In his proposed research he is studying the effects of forms and representations on students' early learning of algebra. Chris and his wife Kelli have a daughter Katie (13 months) and are expecting their second child in October.

He and John Cross attended the Middle Tennessee Mathematics Teachers Conference at Belmont University in November, 1996. Also, he and Anne Singleton, Assistant Professor in Special Education, conducted a workshop for juniors and seniors involved in Project H.E.L.P. at McNairy County High School.

Dr. Matt Lunsford joined the Union faculty in the Fall of 1993 as Assistant Professor of Mathematics. Dr. Lunsford completed his Ph.D. in mathematics at Tulane University in New Orleans in May, 1993. He also holds degrees from the University of Nebraska and Louisiana Tech University. His mathematical interests include commutative algebra, Galois Theory, history of mathematics, and undergraduate mathematics education. He and his wife Deanna are both natives of Louisiana. They have two children who are growing rapidly and keep Mom and Dad very busy -- Cara Elise (2 years) and Thomas Jacob (4 months).

Dr. Troy Riggs joined the Union faculty in the Fall of 1993 as Assistant

Professor of Mathematics. Troy completed his Ph.D. in Mathematics at University of Nebraska-Lincoln in August, 1993. Troy's major area is Applied Mathematics, but he has a special interest in actuarial science. He attended the 1996 MAA summer short course on Actuarial Mathematics in Huntington, WV. Troy and his wife Shelli are very busy with home schooling their three children Caitlin, Peter and India.

## *Current Faculty Update*

Mr. Richard Dehn, Associate Professor in Mathematics, attended the annual conference of the Tennessee Mathematics Teachers Association (April, 1997) at Pellissippi State Technical Community college in Knoxville, TN. This meeting is held every spring at various locations in Tennessee. The major purposes for this annual meeting are to discuss current issues in mathematics and to honor the winners of the annual state-wide high school mathematics contest.

Mr. Dwayne Jennings, Associate Professor of Mathematics, attended the Southeastern Regional conference of the Mathematics Association of America (MAA) at Georgia Tech in March, 1997. At the conference he participated in a workshop on "Mathematics Projects in Undergraduate Mathematics" led by Professors Fred Andrew and Tom Morley of Georgia Tech. This past August, 1997, Mr. Jennings and his wife Becky (who teaches mathematics on a part-time basis at Union) attended a national meeting of the MAA in Atlanta, GA. While there, Mr. and Mrs. Jennings participated in a workshop on Music and Mathematics taught by Professor Leon Harkleroad of Cornell University. As hobbies Mr. Jennings enjoys playing the guitar while Mrs. Jennings enjoys playing the piano.

Mrs. Pat Laffoon, Assistant Professor in Computer Science, attended 'ACM97: The Next 50 Years in Computing', a conference and exposition held in March, 1997 in San Jose, California. This event, sponsored by ACM was underwritten by Computerworld, HP, Intel, Microsoft, and Sun Microsystems. Key technologists and visionaries who

spoke include Gordon Bell, Joel Birnbaum, James Burke, Vinton Cerf, Bran Ferren, Fernando Flores, Murray Gell-mann, Brenda Laurel, Pattie Maes, Carver Mead, Nathan Myhrvold, William Perry, Raj Reddy, Elliot Soloway, and Bruce Sterling. For more information, check the website at [www.acm.org/acm97](http://www.acm.org/acm97).

Michael Laffoon ('97), son of Mrs. Pat Laffoon, married Stephanie Renae Goode ('97) on June 7, 1997. They live in Memphis where Michael works as a computer programmer for FedEx and Stephanie will attend law school at the University of Memphis.

Mr. Don Richard, Associate Professor in Mathematics, attended a National Science Foundation sponsored workshop at Gustavus Adolphus College in Minnessota in June, 97. The topic discussed was "Activity-Based Statistics". As the title implies, it is a relatively new approach to teaching the first course in statistics where the fundamental ideas are developed using computer generated simulation based on actual data. Mr. Richard and his wife, Marjorie, became grandparents for the first time when Blaze Everett Richard was born in July to daughter Joy Catherine and son-in-law Ben Jones. Mr. Richard continues to be Union's Faculty Athletic Representative to the NAIA and actively supports the athletic departments' programs.

Dr. Jan Wilms, Associate Professor in Computer Science, was promoted from Assistant Professor in January '97. He was responsible for securing the Microsoft and Oracle Software Grants. During the summer, he attended a Sun-Microsystems sponsored workshop on Java, which he will use to teach an advanced-level CS elective this fall. Dr. Wilms and his wife, Wallika, are the proud parents of 11-month old twin boys, Alan and Austin.

## *Alumni Opportunities: JOBS*

Did you know that the Union University Career Services department provides placement opportunities, not only for students, but for alumni as well? The job opportunities are increasing each year and expanding into broader geographical areas. If you are interested in this service, contact Mrs. Lynn Gnaegy, Director of Placement, (901) 661-5302.

## *It's Your Turn ...*

We are interested in our mathematics and computer science graduates. What career path and activities have you chosen? We want to know of your endeavors so we can share it with former classmates that ask us of your "whereabouts". Also, your alumni input is invaluable as we prepare our students for the future.

Please let us hear from you!

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