THE UNIVERSITY OF NORTH CAROLINA AT WILMINGTON

Summations

UNCW Department of Mathematics and Statistics Newsletter

Fall 2005

Greetings from the Chair

The Mathematics and Statistics Department had another great year. Two new faculty members, **Farrah Jackson Chandler** and **Alina Iacob**, joined our department in August 2005. There are currently 30 full-time faculty, six part-time faculty and three secretaries in the Mathematics and Statistics Department. The Department also has close to 90 declared undergraduate mathematics or statistics majors and 25 graduate students in our Master's program in mathematics. Starting fall 2005, our department also offers a post-baccalaureate professional certificate in applied statistics. You will find in this issue the accomplishments of our outstanding students and the awards they received.

Our faculty members are committed to excellence in teaching and scholarship. Last year they published 25 articles in professional journals, made 28 presentations at professional meetings, edited three books, and received 9 internal or external grants. **Dr. Russell Herman** received both the *Chancellor's Teaching Excellence Award and the Distinguished Teaching Professorship Award.*

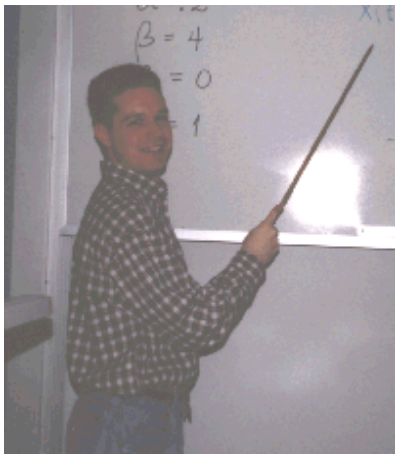
The department is also committed to offering outreach programs for students in middle or high schools and helping local teachers. We continue to host our annual High School Mathematics Contest. Each spring, more than 100 talented high school students participate in the contest and try to qualify for state-level competition. In summer 2005, we hosted Junior Seahawks, our first summer camp in math and science for local middle school students. Sixty-eight students, ranging in ages from 10-14, participated in the camp. Among those, 50 percent were girls and nearly 60 percent were minorities. The department also plans to host the **Texas Instrument Regional Conference** for school teachers on March 31, 2006. Please find more details about this conference on our departmental website.

I would also like to take this opportunity to send our warmest greetings to our retired faculty, alumni, current students and friends. We thank **Patricia Clark** (alumni 1971), **Zach Cox II** (alumni 1975), **Suzanne Hufham** (alumni 1970), **Michele Johnson** (alumni 1992), **Mr. Marvin Leggett** and **Mrs. JD Parker** (relatives of the Gurganus family) for their generous contributions to our trust fund. We also would like to thank **Mr. Carl Nelson** (retired faculty) and his wife **Pattie** for their continuing contribution to the **A. Carl Nelson Endowed Scholarship**. If you are thinking about making donations to our department, please consider contributing to one of our scholarship funds which has been running low in recent years: the **Toney Scholar Award**. This scholarship was established in 1984 as a memorial to **Dr. Fred Toney Jr**. (chairman of the department from 1968 to 1982) by his family, colleagues, and friends. Thank you for your continued support to us.

We would like to hear from you, especially the alumni of our Bachelor's and Master's programs. Your current career and accomplishments, news about your life and family, as well as your opinions about your educational experience in our department are extremely important and beneficial to us.

UNCW

Matthew TenHuisen, Associate Professor - Ph.D. Clemson University, 1993



Since arriving at UNCW in August of 1993, I have experienced numerous roles: I have taught a variety of classes, including courses at every level and even a couple of courses outside of the department; published research articles and presented papers in regional, national, and international conference; worked as an academic advisor for the past several years; served on numerous committees within the college and the university; been the Assistant Department Chair for the past few years; and am currently the Math Lab Director. All of these roles have been fulfilling challenges.

I have enjoyed the role of teaching since my very first class. At the upper level, I have had the opportunity to teach Linear Programming and Discrete Optimization. Having earned my Ph.D. with a concentration in Operations Research, I find these courses particularly enjoyable to teach. I also appreciate getting to interact with some of our majors and graduate students while teaching these classes. At the lower levels, I have taught calculus and college algebra numerous times. Although these students aren't typically as excited about mathematics as our majors are, I still find it exciting to motivate them. It is rewarding to get someone who proclaims that he or she just isn't good at or interested in mathematics to beam with excitement upon suddenly grasping a concept or feeling that they finally understand something they thought beyond their ability. I have also been involved with teaching UNI 101 for several semesters and co-teaching a course for the Science, the Humanities and Society program. Because teaching these courses requires a completely different approach from teaching a mathematics course, I have found these challenges to be especially enjoyable.

I earned my Ph.D. from Clemson University with a concentration in Operations Research. Specifically, my dissertation dealt with Multiple Criteria Optimization Problems and various techniques for solving such. Although the standard optimization problem is formulated with a single objective to be maximized or minimized, it is often times impossible to formulate more difficult problems this way because of the inherently conflicting properties of the desired objectives. Formulating such problems as multiple objective problems is much more realistic, but this makes finding a solution much more complicated. My research papers have dealt mainly with the application of quadratic functions to a technique called Lagrangian Duality.

I have also enjoyed working with the General College as a faculty advisor for several years. This has allowed me to work closely with freshmen and sophomore students in a different context from teaching. I was honored to receive the "General College Advisor of the Year" award for 2002-2003. In addition, I have worked several summers with the Seahawk Enrichment Program. Working with this program has exposed me to other faculty members with passions similar to my own and put me in close contact with students who are truly appreciative of the efforts that we as instructors make on their behalf. I am very thankful to have been a part of this program.

The most significant part of my role as Assistant Department Chair is the creation of the departmental teaching schedule every semester. This can be a particularly challenging job as I try to give all 30 instructors the courses that they most want at times that work best while at the same time fitting too many classes into not enough classrooms. It's a big multiple criteria optimization problem all by itself! As director of the Math Lab, I find myself working with numerous offices across campus, especially Transition Programs and the General College, as we do placement testing for all incoming freshmen during summer orientation. I also get to work closely with our graduate and undergraduate student tutors. Of course, none of the operations of the Math Lab would function smoothly without the incomparable assistance of Edwina Johnson.

The numerous facets of my job keep it interesting. The many people that I get to work with make it a pleasant experience. And the students that I get to teach make it a rewarding job.

Dr. TenHuisen's Recent Publications

"A New Approach to Solving Multicriteria Nonconvex Optimization Problems," jointly with M. M. Wiecek, *Support Systems for Decision and Negotiation Processes, Preprints of IFAC/IFORS/IIASA/TIMS Workshop, 2* (1992), pp. 573-578.

"Modeling preference Trade-offs in Multiple Objective Linear Programming," jointly with M. M. Wiecek, *Multiple Criteria Decision Making, Proceedings of the Ninth International Conference: Theory and Applications in Business, Industry, and Government* (1992), pp. 459-471.

"Vector Optimization and Generalized Lagrangian Duality," jointly with M. M. Wiecek, *Annals of Operations Research*, 5 (1994), pp. 15-32.

"On the Structure of the Non-dominated Set for Bicriteria Programmes," jointly with M. M. Wiecek, *Multi-Criteria Decision Analysis*, 5 (1996), pp. 232-243.

"Efficiency and Solution Approaches to Bicriteria Nonconvex Programs," jointly with M. M. Wiecek, *Journal of Global Optimization* 11 (1997), pp. 225-251.

"An Augmented Lagrangian Scalarization for Multiple Objective Programming," jointly with M. M. Wiecek, *Conference Proceedings of the Second International Conference on Multi-Objective Programming and Goal Programming: Theories and Applications* (1996)

Welcome New Faculty

Dr. Alina C. Iacob, Assistant Professor in Mathematics.

Alina received her Ph.D. in Mathematics from the University of Kentucky in August 2005. She also holds a B.A. in Mathematics from University of Bucharest, Romania (1992). Her research interests are in the area of homological and commutative algebra. Before coming to UNCW, Alina taught mathematics at the University of Kentucky and Academy of Economics Studies (Bucharest, Romania). She received numerous awards from the University of Kentucky, including the Royster TA Award and Enochs Graduate Scholarship for Algebra.

Dr. Farrah J. Chandler, Assistant Professor in Mathematics.

Farrah received her Ph.D. in Mathematics from North Carolina State University in May 2005. She also holds a M.S. in Mathematics from North Carolina State University (2001) and a B.S. in Mathematics Education (1999) from North Carolina A&T State University. Her research interests are in Lee Groups and their related symmetric spaces. Farrah worked as an instructor in the Mathematics Department at NC State University and served as a graduate mentor in the EDGE (Enhancing Diversity in Graduate Education) Program. She received the Outstanding Teaching Assistant Award from NC State University and various scholarships and fellowships during her course of study.

UNCW

Dr. Herman Awarded a 2005 Distinguished Teaching Professorship

Many of you have no doubt heard about **Dr. Russell Herman's** classes over the past 15 years. Some of you may even have had the pleasure to take some of his classes. So, it may be no surprise to learn that this year he was nominated for, and received, two of UNCW's prestigious teaching awards: The 2005 Chancellor's Teaching Excellence Award, which recognizes "all aspects of excellence in teaching and in teaching-related activities that foster students' desire for lifetime learning and success", and The Distinguished Teaching Professorship Award, which "recognizes faculty members who have made a profound contribution to higher education through their dedication and service to students". Dr. Herman has also had his biography recently published in the 2005 Who's Who Amongst America's Teachers.

Dr. Herman came to UNCW in 1990 as a member of the Department of Mathematical Sciences, which later became the Mathematics and Statistics Department. It was clear from the beginning that he would have an impact on both his students and colleagues. In 1991, he joined **Dr. Charles Ward**, **Dr. James Reeves** and **Dr. Gabriel Lugo** in the NSF supported MCP Project to instill excitement in students through the use of multimedia instruction. Dr. Herman and Dr. Lugo started teaching calculus courses using computers and data aquisition in a small room in Bear Hall as part of the MCP Project. Their efforts contributed in part to the current computer classrooms and general use of technology throughout the calculus sequence.

These researchers proceeded to disseminate what they had learned through numerous technology workshops during the years that the Internet was in its infancy. They helped to bring UNCW to the forefront in technology use by setting up the first multimedia classrooms, instructing faculty in using Toolbook, PowerPoint and web page editing while emphasizing the pedagogy behind using such technologies.

In more recent years Dr. Herman and his colleagues have secured many grants to further explore the use of technology. They have become major players in the National Digital Science Library along with **Dr. Ron Vetter** and **Dr. Dick Dillaman** by establishing a digital library for reusable resources in undergraduate science and mathematics. Dr. Herman has become an active participant at the national level with other groups in mathematics. More recently the iLumina digital library has become part of the Randall Library collection through the collaboration with faculty in Randall. Dr. Herman and his colleagues have also been actively involved in exploring the use of mobile devices in the classroom, with the development of a web-based Student Response System (SRS) in the Numina Project and more recently with their work on Mobile Learning Environments. Dr. Herman has also been part of two different groups obtaining ITSD Innovative Awards in 2000 and 2001.

Dr. Herman has been involved in many other aspects of UNCW's mission towards education. He has worked with the Science and Mathematics Education Center (SMEC) ever since his arrival at UNCW, participating in judging science fairs, running Science Olympiad events for a decade, helping with workshops for teachers, and teaching Summer Ventures for several years. He has also chaired the Academic Standards Committee for the past six years. Dr. Herman has worked with the Center for Teaching Excellence (CTE) since its beginning, volunteering in technology workshops and later to become a long time CTE Faculty Associate.

On top of his service and scholarly activities, Dr. Herman has proven to be a well respected educator by both his peers and his students. He has taught on an overload for a decade and has taught every summer since coming to UNCW. He has taught many courses outside his department: Physics and Physical Oceanography, Computer Science, Education Department, Marine Science, and the Honors Program. He is by nature a person with interdisciplinary interests, having earned advanced degrees in both mathematics and physics. As a mathematical physicist, he has taught at all levels in both mathematics and physics and has taught some of the most difficult classes on campus, such as partial differential equations and quantum mechanics, as well as teaching many service courses such as College Algebra and relatively large sections of Introductory Physics.

Continued on page 8...

Faculty Accomplishments

Dr. James Blum, **Dr. Jeffrey Brown**, **Dr. Wei Feng**, **Dr. Russell Herman**, **Dr. Susan Simmons** and **Dr. Kenneth Spackman** were recognized by the December 2004 graduating class as faculty members who significantly impacted their undergraduate or graduate educational experience at UNCW.

Dr. Mark Lammers received the Cahill Award for his research project on Signal Processing and Time Frequency Analysis during summer 2005.

Dr. Michael Freeze was awarded tenure and promotion to the rank of associate professor (effective August 2005).

Dr. Xin Lu recieved a Faculty Research Reassignment Award for fall 2005.

Congratulations Graduates!

Batchelor's Degree

Fall 2004

Christy Rene DeLeon
Ashley Evans Fowler
Teresa Emilea Grove
Michael F. Hanson II

Spring 2005

Kristen Anne Breece
Holly Elizabeth Carter
Kaitlin Rose Cavanaugh
Camden Lee Connelly
Michael anthony Ferraro
Karen Elizabeth Gross
Anthony Ryan Hardison
Brandy Mereta Jones
Kathleen Mary Karlon
Albert Harvey Lee
Melissa Gale Melton
Joseph Mark Pasick
Sarah Elizabeth Sunderman
Rebecca Louise Wilkinson

Spring 2005 *continued...*

Tiffany Leigh Williams
Michelle ann Yoder
Ryan Michael Ziemiecki

Master's Degree

Fall 2004

Kelly Dawn Honeycutt
Peter Maxwell Hocking
Laura Jean Taylor
Shauna Gray Turner

Spring 2005

Lin Cheng
David Randall Lorek
Elizabeth Ann Olsen
Richard Martin Reiter
Brent Oneil Young

Special Reconition for 20 Years of Service

After more than 20 years of devoted service, **Dr. Kenneth R. Gurganus** recently stepped down from the role of Undergraduate Coordinator in the department. Throughout his career, starting even before he took on administrative roles (first as assistant to the chair and then as, the department's programs and enrollments grew, the title of Undergraduate Coordinator), Dr. Gurganus has played a key role in shaping the undergraduate curriculum and basic studies offerings in mathematics and statistics into their current forms. Seen daily in the department office answering undergraduate policy questions or talking with majors in the halls, Dr. Gurganus has been a loyal supporter of student interests. His expertise and skills in developing ways to mesh national guidelines with local needs have been invaluable to the depart-ment and University, and have allowed him to make important contributions through service on committees and task forces for the university system and in University/ community college relations.

"Summations" wishes to commend Dr. Gurganus for his dedicated service to the department and the University, and for his high standards, his scrupulous attention to the language of undergraduate policy, and his devotion to advising majors throughout their undergraduate careers. Many students owe thanks to him for his thoughtful and sometimes creative attention to the many unseen details involved in making students' academic careers flow successfully.

Student Awards

The following student awards were presented at the graduation on May 7, 2005.

The Adrian D. Hurst Award
The Adrian D. Hurst Award goes to the junior or senior mathematics major with the highest GPA who has done all course work at UNCW. This year's recipient is **Rebecca Vinsonhaler**.

Barbara Pridgen English Memorial Award
The Barbara English Award goes to the graduating senior who has the highest GPA. This year's recipient is **Anthony Hardison**.

The following departmental scholarship winners were recognized at the awards ceremony in April 2005.

Adrian D. Hurst Scholarships
Holly Carter is a graduating with B.A. in Mathematics with Teacher's Lincensure Certification. She is enrolled in UNCW's Mathematics & fall 2005. **Anthony Hardison** is a graduating senior who is enrolled in the five year Bachelor's/Master's program in Mathematics and Statistics Department at UNCW. **Kathleen Karlon** is also a graduating senior who plans to attend graduate school fall 2005 from UNCW's Mathematics & Statistics program. **Rebecca Vinsonhaler** is sophomore majoring in mathematics and international business with a minor in German.

Fred Toney, Jr. Scholarship
Mary Margaret McEachern is a senior double majoring in physics and mathematics.

J. Marshall Crews Award
David Fuchs is a sophmore majoring in mathematics with a teacher licensure.

Carl Nelson Award
Kathleen Karlon is a graduating senior with a B.A. in Mathematics and a B.A. in Statistics.

Bookstore Scholarships
Rick McMahon is a junior majoring in mathematics and minoring in music. **Charles White II** is senior with a double major in Computer Science and Mathematics.

These awards are to honor outstanding juniors or returning seniors in the Mathematics and Statistics Department. Selection is made by a vote of the mathematical science's faculty based on the students' academic achievements, extracurricular activities, and a short paper on the subject of the relationship between the students' education and career plans.

Math & Statistics Club

The Mathematics and Statistics Club became an official student club organization of UNCW during the fall semester 2004. The club has witnessed good participation with respect to meetings, events, and fund-raisers. Some of the activities the club has enjoyed are judging a high school math contest and attending the regional Southeast meeting of the MAA at Meredith College. The club has also had several fund-raisers at Chick-Fil-A, in which a good turn-out of students, faculty, and friends have enjoyed. The club recently had a picnic at Hugh McRae Park, with lots of food, family, friends, and fun.

The first club officers were **Joseph Griffin** (president), **Anne Marie Lamb** (vice-president), **Danny Modlin** (secretary), and **Adam Key**(treasurer). The faculty advisors for the club are **Dr. Russell Herman, Dr. Nolan McMurray**, and **Dr. Susan Simmons**.

At the last April meeting, new officers were elected. The officers for the 2005-2006 school year will be **Diana Steng** (president), **Joseph Griffin** (vice-president), **Danny Modlin** (secretary), and **Adam Key** (treasurer).

Post-Baccalaureate Certificate

The post-baccalaureate certificate in Applied Statistics was approved by the Department of Mathematics and Statistics and the Graduate Council in the fall semester 2004. The certificate program allows graduate students, professionals, and other interested individuals to enhance their understanding of statistical theory and applications. The program offers a flexible curriculum, enabling participants to customize the certificate to their needs. The program is scheduled to begin in the fall semester 2005. Interested individuals should contact the program coordinator, **Dr. James Blum**.

Alumni Spotlight - Srinath Vadlamani

Srinath Vadlamani came to UNCW in the fall of 1997. He attended the North Carolina School of Science and Mathematics ('90-'92) and then received a Bachelor of Science in Physics at the University of North Carolina-Chapel Hill in the fall 1996. Srinath happily worked in the kitchen of a local Chapel Hill pizza parlor for the spring of 1997.

Srinath was awarded a Graduate Teaching Assistantship in the spring of 1998, which included grading papers and exams for undergraduate math courses and tutoring in the Math Lab. Instructing in the Math Lab was a source of inspiration for future academic endeavors. While attending UNCW, Srinath was quite engaged in the differential geometry and general relativity seminars given by **Dr. Gabriel Lugo** and **Dr. Russell Herman**. In the summer of 1999, Srinath was accepted into the Ph.D. Applied Mathematics graduate program at the University of Colorado-Boulder. He left that fall to Boulder with anticipation to return the next summer to Wilmington in order to finish his masters thesis. In the summer of 2000, Srinath was awarded the National Science Foundation: Vertical Integration of Research and Education in the Mathematical Sciences (VIGRE) graduate fellowship. Upon completing the first sequence of Ph.D. qualifiers, Srinath returned to Wilmington in the summer of 2001 to complete and defend his MS-Mathematics thesis, "Lie Symmetries of the Vaidya Equations", under the direction of Dr. Russell Herman.

Srinath then returned to Boulder to pursue studies in computational plasma physics and dynamical systems. While studying and doing research in gyrokinetic plasma theory, Srinath taught sections of Differential Calculus, Integral Calculus and Differential Equations with Linear Algebra for the Engineering College at CU-Boulder. Along with these academic endeavors, Srinath took advantage of all the outdoor adventures the Rocky Mountains offer. Some highlights are snowboarding the famed East Wall at Arapahoe Basin, and an epic May day at Wolf Creek on top of 4 feet of fresh snow.

Srinath successfully defended his Applied Mathematics Ph.D. dissertation, entitled "An Algorithmic Unification of Particle-In-Cell and Continuum Methods and a Wave-Particle Description for the Electron Temperature Gradient (ETG) Instability Saturation", under the direction of **Dr. Jim Meiss** (Applied Mathematics) and **Dr. Scott E. Parker** (Physics), on April 4, 2005. The dissertation describes a new algorithm for plasma physics simulations that may address a current challenge with some current simulation techniques. The dissertation also argues for the justified omission of higher order approximations in the model governing the ETG instability. These topics are of interest in the current scientific quest for magnetically confined plasmas to obtain thermonuclear fusion. Srinath's post-defense celebration included the viewing of his alma mater's men basketball team winning the NCAA National Championship.

Srinath is currently in Seattle, WA, with his girlfriend **Tracy Kirkland** and their dog Belle. He is a research associate with the newly formed Plasma Science and Innovation (PSI) Center (http:\\www.psicenter.org). His current research consists of finite volume magnetohydrodynamic (MHD) simulations on a tetrahedral grid of fusion devices categorized as innovative confinement concepts (ICC).

Dr. Herman *continued...*

Almost every semester in the past decade he has been recognized by graduating seniors as an influential force in their undergraduate career. He is described by my students as caring, hardworking, demanding, engaging, fair, knowledgeable, and organized, with a (weird) sense of humor. He has a strong desire to explain concepts and to use innovative techniques to inspire others. This has saturated his career throughout graduate school to the present. At the core is his deep belief that anyone who desires can grasp the fundamental ideas in mathematics and physics. He does this by being accessible to students, providing timely feedback on assessments and knowing the students by name.

At the core of his philosophy is his long time motto, "Learning takes place outside the classroom". He is a strong advocate in the idea that what he teaches can only be fully understood when students actively explore the course material both in and out of the classroom, as can be seen by his extensive use of the Internet. While he is an advocate of technology, it is best used to enhance the courses he teaches and not to replace instruction. But first and foremost in why Dr. Herman has been recognized this year with two teaching awards is that he cares about his students and believes that he was originally hired by UNCW for one thing he has always loved to do: To teach.

Dr. Herman is also an active scholar. His fields of interest are fairly broad, ranging over topics in nonlinear evolution equations, soliton perturbation theory, fluid dynamics, relativity, quantum mechanics, chaos and dynamical systems, signal analysis and investigations into instructional uses of technology in mathematics and science. He has advised close to a dozen graduate theses, many senior seminars, and served on a number of undergraduate honors committees at UNCW.

(*This is an edited version of the article in UNCW's Center for Teaching Excellence Newsletter)

Alumni News

Dr. Scott Watson defended his thesis, String Gases in the Early Universe, at Brown University under the direction of **Dr. Robert Brandenberger** in September 2005. Scott graduated from UNCW in 2000 with a double major in mathematics and physics and completed a physics honors thesis, An Exposition on Inflationary Cosmology, under the direction of **Dr. Russell Herman** of mathematics and **Dr. E. Olszewski** of physics. This thesis has been adopted by NASA as a standard reference on inflationary cosmology. He obtained his Masters of Science from Brown University in 2002, which he received a three year grant from NASA to continue his graduate studies. Scott will continue his research on string theory and cosmology jointly at the University of Toronto and CITA (Canadian Institute for Theoretical Astrophysics) as a postdoctoral researcher. In addition, Scott is working with **Brian Greene** of Columbia University, author of the popular science book "The Elegant Universe", to understand the effects of superstrings in the early universe and possible observational consequences today.

Jr. Seahawk Mathematics, Science and Technology Summer Academy

Jr. Seahawk Academy is a math, science, and technology enhancement program designed to address the need for students to experience opportunities in math, science and technology beyond the classroom. Jr. Seahawk was designed to create affordable experiences for middle school youth of all academic, ethnic, linguistic, and income backgrounds in Southeast North Carolina. The program was intended to empower all students to become engaged in structured, highly interactive, technologically enhanced, fun activities aligned with the North Carolina Standard Course of Study for Middle School mathematics and science.

In the first year, Jr. Seahawk had 68 daily participants. Students ranging in age from 10-14, grades 5-9.

The Jr. Seahawk staff was comprised of two UNCW and one NC A&T faculty, two UNCW graduate and four undergraduate students, and three high school student volunteers. All Jr. Seahawk staff volunteered over 40+ hours of their time. Jr. Seahawk operated from student fees, private donations from faculty and community organizations, and a grant from the Office of Campus Diversity which supplemented student fees.

Some materials and supplies used were provided by the Department of Mathematics and Statistics. The UNCW Biology Department graciously donated the use of equipment such as microscopes and the Watson School of Education provide the use of their Science Lab. Texas Instrument loaned calculators and data collection equipment and also donated a new TI-84+ Silver Edition calculator which was awarded to a Jr. Seahawk Academy participant.

In the future, the Jr. Seahawk director, **Dr. J. Denise Terry**, would like to secure funds to fully support staff. She believes this experience can be a great one for UNCW students; especially those preparing for career in education or social work.

Orientation for Jr. Seahawks

Pi Mu Epsilon

Pi Mu Epsilon is the honorary national society for mathematics founded in 1914. Its purpose is to promote and recognize mathematics scholarship among students. The UNC-Wilmington chapter, North Carolina Zeta, was organized in 1974. This years candidates for initiation in March 2005 were:

Kristen Breece
Holly Carter
Jamie Catanzaro
Kaitlin Cavanaugh
Joseph Curtis
Kimberly Dover
Brandy Jones
Rick McMahon
Alexis Oldham
Jason Smith
Sarah Sunderman
Jason Whitehead
Samantha Williams
Justin Zoppe

MATH FUN

A survey of 400 adults provided the following results.

125 drink only soda,
110 drink only coffee,
90 drink only tea,
200 drink soda,
60 drink soda and coffee,
50 drink soda and tea,
180 drink coffee.

How many adults drink all three of the drinks?

The first correct solution will be recognized in the next edition.

Solution to Fall 2004 Math Fun!

Congratulations to **Richard Reiter M.D.** for having the first correct solution to the fall 2004 Math Fun. Richard graduated form UNCW in 2004 with a masters degree in mathematics. His thesis was titled Using Random Forests and Trees to Predict the Recurrence of Thin Melanomas.

If a and b are real numbers such that $(a+b)/a = a/b$ and $ab > 0$, find the value of a/b. Richard's solution is:

If $(a+b)/a = a/b$ and $ab > 0$, then a and b are both negative or both positive.

$(a + b)(b) = a^2$

$ab + b^2 = a^2$

$a^2 - ba - b^2 = 0$

$$a = \frac{b \pm \sqrt{b^2 + 4b^2}}{2} = \frac{b \pm \sqrt{5b^2}}{2} =$$

$$\frac{b \pm b\sqrt{5}}{2} = \frac{b(1 \pm \sqrt{5})}{2}$$

Since a and b both have the same sign,

$$a = \frac{b(1+\sqrt{5})}{2} .$$

$$\frac{a}{b} = \frac{(1+\sqrt{5})}{2}$$

Support the UNCW Mathematics

Yes, I want to support the UNCW Mathematics and Statistics Department!

* **Mathematics and Statistics Trust Fund**
  (supports student awards, guest speakers and other needs)
* **Toney Scholarship Fund**
* **Crews Scholarship Fund**
* **International Student Graduate Fund in Mathematics and Statistics**

Send to: UNCW Advancement Services
601 South College Road
Wilmington, NC 28403-5990

Gifts to UNCW qualifies as a charitable donation.
Thank you for your consideration and generosity!

Summations

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Alumni! We want to hear from you!

Name: _____
Dr./Mr./Mrs./Miss/Ms. First Middle Madiden Last Suffix

Address: _____
Street/PO Box City State Zip Code

Phone: (____)_____(____)_____ E-Mail Address: _____
Home Work

Employer: _____ Position: _____ Gift Matching Co.? ____Yes ____No

_____
Street City State Zip Code + 4

Graduation Date: _____ Degree/Major: _____ Is spouse UNCW alumnus? ____Yes ____No
Semester/Year

Alumni News! Send your update by e-mail (fleckt@uncw.edu) or mail (Mrs. Terry Fleck, 601 S. College Road, Wilmington, NC 28403-5970)

We want to hear from you!

Please provide us with information about yourself. Where are you and what are you doing? Do you know of other alumni? If so, please include information about them as well.