

“All the v’s that’s fit to print”



Newsletter

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Department of Mathematics, University of Colorado, Colorado Springs CO 80933-7150
(719) 262-3311 mathinfo@math.uccs.edu <http://mathweb.uccs.edu>

Outstanding Student Awards

During “end of year awards ceremonies” in May 1998, three mathematics students were honored for academic achievement during Academic Year 1997/98.

Katherine (‘Kay’) Shafer was named the *Outstanding Undergraduate Mathematics Student in the College of Letters, Arts, and Sciences*.

Matthew (‘Matt’) Berdine was named the *Outstanding Undergraduate Mathematics Student in the College of Engineering and Applied Science*.

Shannon Michaux was named the *Outstanding Graduate Student in Mathematics*.

Congratulations to Kay, Matt, and Shannon for jobs well done !!

Outstanding Instructor

The *1997/98 Outstanding Honorarium Instructor in Mathematics* award was presented to **Dr. Joseph Liu**. Joseph has taught courses in the Mathematics Department (and other UCCS departments) for over 15 years. His primary teaching focus recently has been the course *Perturbation Theory in Astrodynamics* (Math 552). In addition, Joseph has been involved in graduate student thesis direction and various hiring / search committees for the college. He is employed full time by the Air Force; he is in charge of satellite tracking for NORAD.

Rogers Announces Retirement

Dr. **Laurel Rogers** has retired from her position as Associate Professor in the Department of Mathematics. Laurel started teaching in the UCCS Mathematics Department in 1965 !!! She will be sorely missed.

An interview with Laurel appears at the end of this Newsletter.

Ranga Earns Chancellor’s Award

K.M. Rangaswamy was named the recipient of the 1998 campuswide Chancellor’s Award. This award is given to the one UCCS faculty member per year who best exemplifies the qualities most admired in a faculty member, including the three areas of research, teaching, and service. In remarks made at the campuswide Awards Ceremony in May, UCCS Chancellor **Linda Bunnell Shade** commented on Ranga’s valuable contributions to the University, including his 12 years as Math Department chair, his valuable service as interim Dean of the EAS College, and his impressive research and teaching accomplishments. The Chancellor’s Award comes with a medallion as well as a \$500 stipend (which Ranga has graciously donated to the Scholarship Fund). We all congratulate Ranga on this richly deserved recognition !!

Haefner Earns Recognition for Teaching with Technology

In a banner year for the department, a pair of prestigious awards was bestowed on one of its members. This past spring both the UCCS campus and the University of Colorado system instituted awards designed to recognize faculty who have effectively incorporated technology into their teaching. The UCCS Mathematics Department is extremely proud that its own **Jeremy Haefner** earned BOTH of these awards! The campuswide award is called *the CU – Colorado Springs Innovations in Teaching With Technology Award*. A luncheon in Jere's honor was held at The Lodge on April 30; Jere was asked to make a presentation to his UCCS colleagues regarding some of his work. The very next day another luncheon in Jere's honor was held on the CU-Denver campus to help celebrate his receiving the University of Colorado systemwide *President's Faculty Excellence Award for Advancing Teaching and Learning Through Technology*. Jere again made a presentation, this time to an audience which included systemwide administrators as well as the other 11 nominees for the award. These awards each recognized Jeremy Haefner for his many contributions in the area of teaching with technology, including his past associate directorship of the Math Learning Center, directorship of CATME (Center for Applications of Technology in Mathematics Education), and development of real-time, on-line mathematics courses. The campus award comes with a plaque, \$1,000 stipend, and \$1,000 for equipment and software expenditures; the systemwide award comes with a \$2,000 personal stipend and \$8,000 technology account.

Michaux named Math Learning Center Director

Shannon Michaux (B.S Mathematics, CU-Boulder; M.S. Applied Mathematics, CU – Colorado Springs) began duties as Director of the Mathematics Learning Center this fall. Shannon takes over for **Jim Hassed**, who recently took a position at the Joint National Test Facility doing Web development. Jim had been MLC director for 3½ years. If you have any questions or suggestions regarding the Math Learning Center, feel free to stop by Shannon's office in EAS 277.

Sabbatical assignments

Bob Carlson finished a number of projects during his Fall 1997 sabbatical. These included work that he is doing on the connections between differential equations and graphs. Bob spent a number of days working at CU – Boulder, both giving and attending colloquium talks.

Jim Daly was extremely busy working and travelling during his sabbatical assignment. Jim and his wife Mary spent Spring 1998 at the University of Canterbury in Christchurch (New Zealand) as the guest of Qui Bui of the U. of C. Mathematics Department. While in residence there, Jim completed a number of projects, including some work on multiplier operators (joint with Keith Phillips). Jim started new projects as well, some of which involve wavelet theory. During their time in New Zealand Mary and Jim enjoyed many of the country's amenities. Mary joined the Christchurch Potter's Guild to maintain and enhance her expertise in pottery. When they needed a break from 'work' activities, they played tourist over much of the South Island of New Zealand, encountering the great outdoors (SHEEP, sperm whales, penguin colonies, albatross, tree ferns, glaciers, etc ...). Professor James Daly did extensive research into the Southern Hemisphere Coreolis affect and its relationship to small white dimpled spheroids! As it turns out, New Zealand is covered with golf courses that are very nice and *very* inexpensive. The Dalys capped their trip with a one week stay in Fiji. "Beautiful islands, beautiful people, and fantastic snorkeling", beamed a relaxed Daly couple. The week in Fiji was a great way to end four months of study and rejuvenation.

Shirts and Hats

Just a reminder that the UCCS Department of Mathematics logo has been incorporated in handsome golf shirts and caps! (The logo appears in the masthead of this Newsletter). The shirts and caps are black; the logo is in the school colors (blue and gold). To order: Shirts are \$18.98, Caps are \$16.00. Caps are one-size-fits-all; specify shirt size S, M, L, or XL. Send a check (payable to *Embroidered Expressions*) to the above mailing address, attention Joanie Stephens.

Jere is Chair

A 'Changing of the Guard' of sorts took place during August 1998. **Jeremy Haefner** became

chairman of the UCCS Department of Mathematics. After three years as chair, **Gene Abrams** stepped down and returned to his regular faculty duties. During Gene's stint as Chair, the department saw a large increase in enrollments, and met many of its short-term research, teaching, and service goals.

In addition to the usual duties as chair, there will be two major departmental events over which Jere will preside during AY 1998/99: the departmental review (which occurs every seven years), and the hiring of a replacement for Laurel Rogers.

COAMP

K.M. Rangaswamy and **Jim Daly** have been leading the Colorado Alliance for Minority Participation (COAMP) program through the College of Engineering and Applied Science. They recently received word that their grant application to extend this program for another year has been approved by the National Science Foundation. The programs supported by COAMP funds include MESI (Maximizing the Effect of Supplemental Instruction), tutoring, mentors, summer 'bridge', and visiting scientists. The program's goal is to double the number of students from traditionally underrepresented classes in math, science, and engineering over the next five years.

Visitor

We are fortunate to have Dr. **Christopher Pappacena** in our department during Academic Year 1998/99. Chris earned his Ph.D. in Spring 1998 at the University of Southern California. His research focuses on noncommutative ring theory, especially finite dimensional algebras and integral representation theory. Chris has been active in the weekly Algebra Seminar. In addition, he is teaching both *Calculus I* and *Calculus for Business and Economics* during Fall 1998. His office is EAS 279 ... stop by and say hello !

Travelers

In addition to the sabbatical travels of Jim Daly and Bob Carlson described above, many other department members journeyed far and wide during AY 1997/98.

Rinaldo Schinazi attended a conference in Rouen, Paris in June 1998. In addition, he was invited to participate in a conference at Cornell University in July 1998 in honor of Professor Harry Kesten.

Bob Carlson attended the International Congress of Mathematicians in Berlin during August 1998. This conference, which is more or less the Olympics of mathematics, convenes every four years at varying locations. Approximately 3500 mathematicians were in attendance. There were numerous high level talks on a wide variety of mathematical topics. The Fields Medals, often considered the mathematical equivalent of the Nobel Prize, were awarded to Curtis McMullen (an American), Richard Borcherds and William Gowers (both British), and Maxim Kontsevich (a Russian now working in France). A special award was given to Andrew Wiles for his proof of Fermat's Last Theorem.

Keith Phillips spent six weeks of summer 1998 travelling, giving lectures, and discussing wavelets and computer vision with mathematical associates in Europe. Keith was invited to give a talk at an international meeting on Numerical Analysis and Computers in Plovdiv, Bulgaria. He continued on to do joint work with colleagues at Eotvos University in Budapest, Hungary. Finally, Keith ended his trip by joining Bob Carlson in attending the International Congress of Mathematicians in Berlin (described above).

Yu Zhang spent the month of May in Rio de Janeiro, Brazil, at the IMPA (The Mathematics Institute of Brazil). Yu was the guest of Professor Vlasov of the IMPA. Yu and Vlasov spent most of their time during Yu's visit finishing up a long joint paper.

K.M. Rangaswamy gave an invited lecture at the International Conference on Abelian Groups and Modules in Dublin, Ireland, in July 1998. In addition, Ranga and his wife Sarah returned to their native India in order to celebrate Ranga's 60th birthday in traditional style!

Jeremy Haefner gave an invited colloquium talk at the University of Southern California in April. Jere and family were able to spend some time doing the 'Southern California' thing ... Disneyland, Universal Studios, Star Trek conventions, and the like.

Professor as Student

Greg Morrow has recently completed what he describes as a "six year long odyssey in humility". Specifically, Greg earned a Master of Arts degree from Regis University in the LPC licensure track of the clinical psychology program. (This explains the

recent appearance of a couch in his office ...)
Congratulations, Greg!

College Earns Diversity Award

The College of Engineering and Applied Science earned the 1997/98 CU President's Diversity Award. This award was in large part a result of the hard work of the math department's **K.M. Rangaswamy**, who in his role as Interim Associate Dean was instrumental in helping the college's diversity efforts. Of course there were many other individuals involved in this effort, including Dean **Ron Sega** and Special Assistant **Tina Moore**. The award indicates, in part, that "... the College met or exceeded each of its ten diversity goals, and led the campus in promoting multicultural initiatives." One of the most important efforts in this diversity initiative is Ranga's MESI program. MESI stands for Maximizing the Effect of Supplemental Instruction. As part of this program, 'at-risk' students are identified by instructors, and personal contacts are made with these students via letters from the department chair, and phone calls from department staff. These contacts are meant to encourage students to take advantage of all the opportunities they have for additional help, such as instructor's office hours, the Math Learning Center, and Supplemental Instructions sessions.

Rinaldo in Print !

Rinaldo Schinazi is the proud father of a new text! Birkhauser Publishers has announced that Rinaldo's textbook *Classical and Spatial Stochastic Processes* would be out for the Spring semester 99. The main goal of the book is to lead the reader from elementary stochastic processes (random walks, the 'ruin problem', the Poisson process) to spatial stochastic processes (percolation, contact process) which are the object of considerable current research (including his own). Congratulations, Rinaldo!

Interaction with Teachers

The Mathematics Department was very much involved in the ongoing dialog with K-12 teachers throughout the Pikes Peak region. Various endeavors and activities included:

- *Roundtable Discussion: Partnerships for Mathematics, Science, and Engineering*, held December 2, 1997 at UCCS. This meeting included math and science K-12 teachers as well as

representatives from local industry. Over 30 people attended. The meeting was organized by Associate Superintendent **Ted Baumann** of Lewis-Palmer School District 38, **Dr. Lindy Royer** of Beechwood Data Systems, and **Gene Abrams** of the UCCS Math Department. This meeting was the genesis of the *Summer Internship Program*, in which over 20 local teachers worked at high tech corporations, with an eye towards incorporating their experiences into their classrooms.

- **Gene Abrams** and **Ardyce Putnam** received a Colorado Commission on Higher Education Minigrant, titled "How the Mathematics Skills Students Acquire in High School Align With the Competencies They Need in College". The corresponding meeting, which happened on February 11, 1998, attracted over two dozen regional math teachers and high school counselors. A lively dialog regarding curriculum (both at UCCS and Pikes Peak Community College) and an exchange of valuable information highlighted the day's activities.

- The course *Math 4/510 Technology in Mathematics Teaching and Curriculum* was taught during Summer 1998 by **Jeremy Haefner**. Students completed projects which they could utilize in their own classrooms.

- **Ardyce Putnam, Jim Daly, and Jeremy Haefner** ran a weeklong workshop for K-12 teachers during June 1998. The workshop was held on the UCCS campus. This was part of an Eisenhower Grant obtained by Ardyce. The workshop was titled *Quantitative Reasoning and Statistics*, and included topics such as basic statistics and data presentation, calculator and Web activities to support instruction, materials development, and assessment instruments related to the new Colorado standards. Approximately 35 teachers from eastern El Paso County attended.

- **Gene Abrams** continued to give presentations about the nature of mathematics to high schools throughout the area. These were warmly received, both by students and teachers.

Congratulations to All 1997/98 Graduates!

Here is the list of the 1997/98 graduates from each of the department's degrees programs. We have recently been in contact with most of these individuals in order to determine just what sorts of

careers they are pursuing and jobs they are holding.
An impressive list, to be sure!

(no career indication means we were *unable to contact*.)

B. A. Mathematics:

Jamie Courtier student in Teacher Ed Program

William Hendricks

Christopher Noffsinger Peace Corps in Africa

Jason Scheopner

Katherine Shafer student in Teacher Ed Program

Alison Sims student in Teacher Ed Program

B.S. Applied Mathematics:

Matthew Berdine high tech sector

Max Kraemer high tech sector

Monte Lunacek PhD program in statistics, 1999

Rhonda Peterson

Kevin Tran computer work @ Peterson AFB

M.S. Applied Mathematics:

Dean Barchers math instructor, USAFA

Matthew Duncan orbit analyst

Trae Holcomb math instructor, USAFA

Marshall Lassak PhD program in Math Ed @ UNC

Debra Maresh HS math teacher, Wash.DC area

Shannon Michaux Director, UCCS Math Learn Ctr

Edward Pegg high tech sector

April Pierce student in Teacher Ed Program

William Rainaldi self-employed software consultant

COMAP Modeling Contest

The Math Department is looking for students to participate in the COMAP (Consortium on Mathematics and Its Application) Mathematical Contest in Modeling (MCM), to be held February 5-8, 1999. The MCM is an annual international contest in which teams of three students model, solve, and write up their solution to an open-ended applied math problem. The contest is unique in that it involves students working cooperatively on a problem throughout the course of an entire weekend (nights included!). The students' work culminates with a solution paper that is mailed in to the judges. Several hundred teams participate each year from schools around the world, and the best papers are recognized with publication in the UMAP Journal.

Each school can enter up to four teams in the traditional contest. In addition, there will be an all new interdisciplinary category this year, and two additional teams can enter in that category. This year the interdisciplinary problem will involve mathematics, chemistry, and environmental science and engineering. Teams will access from the Web a data base for an actual pollution problem.

If you are interested in participating in the MCM, please attend one of the information meetings on October 28 at 12:15 in ENG 239 or October 29 at 6pm in ENG 239, or contact team organizer Dr. **Holly Zullo** at hzullo@math.uccs.edu if you are unable to attend either meeting. Bring along your friends from physics, chemistry, and environmental studies as well!

The Math Club

The Student Chapter of the Mathematical Association of America (a.k.a. The Math Club) is alive and well. The officers for 1997/98 are **Meredith Elrod** (President), **Sandra Shappell** (Vice President), **Bill McKee** (Treasurer), and **Daniela Williams** (Secretary). The faculty sponsor is **Ken Rebman**. The club has many possible projects planned for this year, including the development of a web page, sponsoring field trips (e.g. to NORAD, Lockheed, and Space Command), informal talks, films, etc. Everyone (current students, former students, potential students, EVERYONE) is invited to attend. For additional information contact the UCCS Mathematics Department.

Distance Ed courses via The Net

The Department of Mathematics delivered two courses during Spring semester 1998 'at a distance', and is offering the same two courses in this mode during Fall 1998. The two courses are: *Calculus for Business and Economics* (Math 112) and *Differential Equations* (Math 340). Each of the courses is taught in a relatively traditional fashion (live instructor in a classroom, with students fully participating). The slight difference that in-class students experience is the use of a graphics tablet to project the instructors' writing on a screen, rather than a standard chalkboard or whiteboard. All students can 'replay' the lectures at their convenience in order to review material or prepare for exams. In addition, students can print off hard copy of lecture notes. The course *Linear Algebra* (Math 313) will be offered in this mode during Spring 1999.

Mathematics Monthly Puzzler

The Math Department is glad to continue its sponsorship of the Mathematics Monthly Puzzler contest. This contest is open to all currently-enrolled UCCS undergraduate students. Students of

all mathematical ability levels and backgrounds are encouraged to try their hand at the Puzzler. Written solutions to the Puzzler should be deposited in the Puzzler Box in Hilbert's Place (EAS 140). A \$20 Gift Certificate to the UCCS Bookstore is awarded to the student who submits the most creative, complete, and/or interesting solution. In addition, a special prize will be awarded to the student who submits the best overall solutions to all of the semester's Puzzlers. Here is the current Puzzler:

*Show that for any integer $n > 1$,
 $2^n - 1$ is never a perfect cube.*

Previous Puzzler questions, along with their solutions, can be found by visiting the department's web site <http://mathweb.uccs.edu>.

An Interview with Laurel Rogers



Dr. Laurel Rogers

Interviewer: Gene Abrams

Associate Professor **Laurel A. Rogers** officially retired from her position in the UCCS Department of Mathematics in May 1998. In the following interview, Laurel looks back at her unique career.

Q: When and how did you decide you would have a career in math?

A: I started off as a science major during my freshman year at Colorado College in 1956. After ruining a number of dresses with acid splatter in science lab, I decided that perhaps I should pursue my first love, mathematics. I did quite well, winning the *Math Student of the Year Award* both as a sophomore and a senior. I graduated Summa Cum Laude in 1960, and the very next year I had a visiting faculty position in the Math Department at CC!

The next year my family and I moved to Las Cruces, New Mexico, where I started in the PhD program in mathematics at New Mexico State University.

Q. What was it like being in graduate school?

A: I liked graduate school, because I liked mathematics. The department was small and people liked each other. I was not the only female graduate student, so I felt rather comfortable in that respect, although I never really tried to 'join in' when other students (male or female) would be working homework problems. I finished all my PhD coursework, and then my family moved back to Colorado Springs in 1965 before I could finish my dissertation.

I taught as an honorarium instructor at UCCS in AY 1965/66. I was pregnant during that year with my third child. I remember vividly the department chair, Rebekka Struik, remarking on how wonderful it was that I was continuing to teach even though I was pregnant! At that time it was very unusual for women to continue their employment through pregnancy; now it is the norm.

Q. Is that when you joined the UCCS faculty full-time?

A: No. I left UCCS following the Academic Year 65/66. But, after working as a civilian for the Air Force for a few years, I decided to return to teaching. The UCCS Math Department chairman at the time, Jim Modeer, offered me an honorarium position in 1971, a 1/3 appointment in 1972, and a 1/2 appointment in 1973 and two subsequent years. He encouraged me to think about working on my dissertation, even though many years had passed since my graduate school days, and my advisor was 500 miles away! In 1973 I decided to try to complete my PhD, so I officially re-enrolled at NMSU, retook my qualifying exams, spent two summers in Las Cruces, and finally finished it off in 1975. (I think I'm the only math PhD student in NMSU history to pass the qualifying exams TWICE!) Looking back, I am really glad that I completed my degree. Once it was done, I was offered a full time Visiting Assistant Professorship in 1976, and then a regular Assistant Professorship in 1977.

Q. Do you have any special anecdotes or special things that you remember from your days here at UCCS?

A: Even though it didn't seem funny at the time, on looking back, the process of my being awarded tenure here at UCCS in the late 70's was somewhat

comical. My case was approved at all the UCCS campus levels, as well as at the Boulder campus (this was necessary as the UCCS Engineering college was administratively still attached to CU-Boulder at the time), but then was rejected by the CU systemwide president! After a great deal of protest by many in the system, the case was re-evaluated, and my tenure awarded. I'm sure there are not too many people who have a letter from the president of the system saying "... thanks for your service, but you will not be returning next year...", who in the end wind up staying for 20 more years!

It's interesting to note that in over 25 years of teaching full time in the Math Department at UCCS I essentially worked for only two department chairs (Modeer and Rangaswamy), while there must have been at least two *dozen* campus and systemwide administrators passing through in that time! (I took a turn at being chair for one semester, Spring 1983. The best thing I did in that position was to hire Rangaswamy to be the permanent chair!)

Q. How has UCCS changed over the years?

A: The biggest change (aside from the parking, of course) is the make up of the student body. When I started I was younger than many of the students in my classes, since most were older students who were attending UCCS part time. As I got older, the students not only seemed younger, they really were younger!!

Q. Do you have a 'fondest memory' of your years at UCCS?

A: In general I look back with pleasure on my career here. I guess if there was one thing that stands out it was when my son David came to give a colloquium talk here at UCCS in Spring 1998. David has a PhD in mathematics; he is currently chairman of the department at Sam Houston State University in Huntsville, Texas. I am so proud of his accomplishments, both as a scholar and a father! This is a wonderful memory for me.

Q. What plans do you have for the future?

A. Right now I feel as though I am just 'catching up' on a lot of things that I have wanted to do for the past few years but never had the time. I am doing some volunteer work for my church. I am also still doing mathematics! In addition to attending some colloquium talks, I meet once a week with Sandy Hilt to work through a book on category theory. We plan to do some number theory next year as well. I definitely haven't slowed down at all!