

“All the v’s that’s fit to print”

# CU - Colorado Springs

## Department of Mathematics

### Newsletter

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<http://piglet.uccs.edu/mathhtml/math.html>

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#### Summer 1996 Offerings

In addition to its usual 100, 200, and 300 level summer course offerings, the math department will offer the following senior / graduate level courses during Summer 1996.

1. Math 405/505: *Topics in Mathematics for the Secondary Classroom*. 2 credits. Taught by Jim Daly. Course will meet MWF 8:00am-12:05pm, from June 10 through June 28.
2. Math 410/510: *Technology in Mathematics Teaching and Curriculum*. 3 credits. Taught by Jeremy Haefner. Course will meet MTRF 4:30-7:05pm, from July 8 to Aug 2.
3. Math 423/523: *Fractal Geometry*. 3 credits. Taught by Greg Morrow. Course will meet TR 1:40 - 4:20pm, from June 10 to Aug 1.

#### Hilbert’s Place Opens

We are pleased to announce that *Hilbert’s Place*, a center for ‘recreational mathematics’, is now open for business. Hilbert’s Place is located inside the Math Learning Center, EAS 140. Hilbert’s Place provides information about various aspects of mathematics, e.g. what types of employment math majors can expect to find, expository articles about new research in mathematics, and the like. Hilbert’s Place is also where you can submit solutions to the Monthly Puzzler (see below). Hilbert’s Place is named for David Hilbert, a leading mathematician near the turn of the century

whose work on describing certain structures was so fundamental that any structure of this type now bears his name: ‘Hilbert Space’. (Should we leave the word play to the English Dept.?)

#### Spring 1996 Visiting Scholars

We are pleased to welcome three semester-long visitors to the UCCS mathematics department this semester. Each of them is an expert in the field of abelian groups; this coincides with Ranga’s research interests, and overlaps to a small degree with Gene’s.

Ladislav (‘Lada’) Bican (pronounced ‘Beets-on’) is currently on leave from Charles University in Prague, Czech Republic, where he is full professor. Lada and Ranga have coauthored some papers in the past, and hope to produce some joint work this semester as well. Lada is teaching Calculus II (Math 136) for us.

Elisabetta Martinez is currently on leave from the University of Padova (Padua) in Italy. Professor Martinez is currently studying some of the work of Ranga and others on Butler groups. Elisabetta is in Colorado Springs as part of the math department’s Visiting Scholars Program.

Peter Krog is currently finishing up some of the final touches on his thesis for his Ph.D. from the University of Connecticut. He expects to earn his degree this semester. Pete is teaching Elementary Functions for Calculus (Math 105) for us.

## Sega to become EAS Dean

Dr. Ronald Sega will become the new Dean of the College of Engineering and Applied Sciences, effective with Fall semester 1996. Dr. Sega has been a member of the UCCS Department of Electrical and Computer Engineering since 1983. He has been on leave from UCCS for the past five years in order to work as an astronaut with NASA. He has flown in the past on the Space Shuttle Discovery, and is scheduled to fly on the Space Shuttle Atlantis this coming March. The mathematics department is looking forward to Dr. Sega's leadership and expertise as dean. We wish him luck on his upcoming flight!

## Mathematics Monthly Puzzler

The math department is glad to sponsor the Mathematics Monthly Puzzler contest. This contest is open to all currently-enrolled UCCS undergraduate students. Roughly once per month, a math problem is posted around campus. The solution to this problem usually involves some basic mathematical tools, but more likely requires some creative insight and ingenuity. 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, 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.

For your amusement, here is the current Mathematics Monthly Puzzler (due March 15):

*My wife and I invited four other couples to our house for a party. During the course of the evening, some people shook hands with other people and some people didn't. (Nobody shook hands with their spouse.) Near the end of the evening I asked everyone else how many people they had shaken hands with. No two answers were the same. You now have enough information to figure out how many people I shook hands with!*

## World Wide Web Homepage Now Up and Running

<http://piglet.uccs.edu/mathhtml/math.html>

The UCCS Department of Mathematics has its own homepage on the World Wide Web. It can be accessed at the above address, or via the main UCCS website at <http://www.uccs.edu>.

On the homepage you will find all sorts of information about departmental programs, course schedules, faculty interests, and the like. We hope you'll pay us a visit!

The department is looking for a piece of artwork to use at the head of its homepage. More information about the Art Contest can be obtained by visiting the page.

## Enrollments are UP in math

Spring 1996 enrollments in mathematics courses are up almost 3 percent over last Spring semester. We are pleased with our growth. We feel this growth is quite impressive, especially in light of the fact that we have recently instituted mandatory prerequisite requirements for all students enrolling in Math 104, 105, 111, 112, or 135. These mandatory prerequisites represent one way in which the department is supporting the Student Success Initiative, by ensuring that students are enrolled in the mathematics course which is just right for them.

## Faculty Travel Tidbits

Jeremy Haefner is on sabbatical assignment during AY 1995-96. He received a grant to do research at the University of Murcia (Spain). Jere, Lori, Nick, and Ramsey are enjoying their nine-month visit. Jere has promised to share some of his adventures (and hopefully some of his theorems, too!) upon his return to Colorado Springs in June.

Yu Zhang accepted an invitation from three universities in Beijing, China to give a series of ten lectures regarding his research results. Yu works in an area of probability known as percolation theory. His talks were given during the UCCS winter break. As an added bonus to this trip, Yu was able to spend some time with his parents, whom he had not seen for seven years.

Nancy Baggs, Sandy Hilt, and Sandy's husband Dick will be in attendance as Invited Guests at the launch of the Space Shuttle Atlantis, Mission STS-76, currently scheduled

for March 21. On board this flight will be Astronaut Ron Sega, the newly-appointed Dean of Engineering and Applied Sciences.

## **Graduate Program Thriving**

Under the direction of Rinaldo Schinazi, who became chairman of the math department's graduate committee this past fall, the M.S. Applied Mathematics program continues to grow. There are currently 25 students enrolled in this program, including eight Graduate Teaching Fellows. Congratulations to Barbara Rollison, Allison Smith, James Peugh, Dennis Claes, and Michele Davis, all of whom completed their degrees last year. We expect about the same number of graduates this year.

## **Certificate in Industrial Mathematics**

The mathematics department has recently established a certificate program in Industrial Mathematics. This program is designed to provide a well focused education for students who expect to use their mathematical training in an industrial setting. These students may be pursuing careers as numerical analysts, software engineers, statisticians or actuaries. In such careers, the employer will value certain skills not developed in the traditional mathematics curriculum. These often neglected skills fall roughly under the category of mathematical modeling.

Three types of certificates are available. The first is offered to any student completing the following sequence of courses: Calculus (MATH 135, 136, 235), Introduction to Linear Algebra (MATH 313), Introduction to Differential Equations (MATH 340), Probability Theory (MATH 381), and Mathematical Modeling (MATH 448). The second type of certificate is offered to students who complete a bachelor's degree in applied mathematics, and who also take Mathematical Modeling. The third certificate type is for students receiving a Master's degree in applied mathematics. Students pursuing the Master's level certificate will be expected to write a Master's thesis on a topic relevant to industry.

For more information on any of these certificates, contact Bob Carlson at 593-3311.

## **Math People at UCCS**

Each issue of the UCCS Department of Mathematics Newsletter will contain an interview with a person who plays a role in the success of the department. In this inaugural issue we present a conversation with Jim Hassed, the Director of the Mathematics Learning Center. Jim is a recent graduate of UCCS.

*Newsletter: Jim, after you finished your bachelor's degree, you went on to CSU for graduate work. Could you comment on that experience, and on the quality of education you received here?*

Jim Hassed: Overall, the experience was good. The transition was difficult at times. Colorado State is a larger university (approximately 25,000 students), so you lose the intimacy that is present at UCCS. I don't think that is necessarily bad. Attending a larger university gives exposure to a broader range of ideas and influences. There are good and bad sides to both environments. While I was attending Colorado State, I did not feel that my undergraduate preparation was lacking. In hindsight, it is apparent that the quality of education I received at UCCS was comparable to the education my fellow graduate students received. When you begin graduate coursework, it is easy to feel that you are ill prepared for just about every course you take, regardless of whether that is indeed the case.

*News: Do you have any words of wisdom for undergrads who might be thinking about graduate school in mathematics?*

JH: I think graduate study in mathematics is a very beneficial experience. There are two basic reasons for this. First, at the graduate level, you start to see how open ended everything is. A second benefit of graduate study is that you must devote yourself to the study of a particular area of mathematics for an extended period of time. This extended study results in a deeper understanding of the material and it also introduces you to the process of mathematical research.

*News: What is the purpose of the Math Learning Center?*

The Mathematics Learning Center is located in Engineering 140, next to the PC computer lab. It is intended primarily for students enrolled in lower division mathematics courses. Students can receive free tutoring help

on a drop-in basis during our normal hours of operation. The tutors in the MLC also provide assistance in the use of Maple. This support does not include Maple programming, however. Any UCCS student may come to the MLC for assistance with mathematics; they do not have to be enrolled in a math course. We provide diagnostic testing for students who are bringing their mathematics skills up to a collegiate level. We also provide the testing and tutoring services for the 090 and 091 courses which are offered through Continuing Education.

*News: Do you anticipate any changes in its operation in the near future?*

JH: Aside from our hours of operation, which can vary from semester to semester, no major changes are in the works. As we increase the amount of mathematical software in the computer lab, the amount of computer related support will increase. However, this change will be felt by our employees and not by the student.

*News: Does your job involve any other major responsibilities?*

JH: In conjunction with teaching, one of my main projects will be the development of Maple labs for Calculus and eventually labs for Linear Algebra and Differential Equations.

*News: The mathematics department has recently begun to enforce mandatory prerequisites in freshman level courses up to MATH 136. One way for students to satisfy these prerequisites is to pass a placement exam. Why are we using placement exams?*

JH: The placement exams are a very useful tool in evaluating the skills of students entering the lower division math courses. No one benefits when a student enrolls in a course for which they have an inadequate background. It can be a very frustrating experience for the student and may lead the student to believe that he or she does not have the ability to succeed in mathematics when that is not the case. The exams also serve as a useful tool for faculty members when they are advising a student. We have also found that the success rate (grade of C or better) of students who have satisfied the appropriate prerequisites (either by completing certain university coursework, or by demonstrating a certain competency level via placement exams) is dramatically higher than the success rate of those who have not.