UTEP DEPARTMENT OF MATHEMATICAL SCIENCES NEWSLETTER

Spring 1993

NEW PROGRAM IN ACTUARIAL SCIENCES

Students who major in mathematics may now choose a concentration in Actuarial Sciences under the B.S. Degree in Mathematics. In 1990, being an actuary was rated the best of 250 occupations by *The Jobs Rated Almanac* when such things as salary, work environment, stress, outlook, security, and physical demands are taken into consideration.

An actuary is a business professional who uses mathematical, statistical, communication, and computing skills to attempt to define, analyze, and solve business and social problems. Actuaries specialize in the evaluation of financial risk. Using mathematical, statistical, and economic models to evaluate the financial, economic, and business implications of future events, actuaries design financial programs which focus on life, health, property, casualty, retirement, demographic, economic, and investment possibilities. Currently about 80% of professional actuaries chose mathematics as their undergraduate major field of study.

Although about two-thirds of all actuaries work for insurance companies, career opportunities are also available with health service organizations, public accounting firms, large corporations, labor unions, federal, state, and local governments, and colleges and universities.

There are professional actuarial organizations which offer a series of up to ten examinations on different areas important to the field. Most employers expect their actuaries to pass a certain number of these exams in order to advance their careers. The program offered at UTEP seeks to ensure successful placement of its graduates as actuarial trainees by preparing them to take at least the first two of the exams, calculus and linear algebra, and probability and statistics, by the time they graduate. New courses offered as part of the concentration include Math 3220 Mathematics of Interest and Math 3320 Actuarial Mathematics.

Further information on this new program and a career in actuarial science can be obtained from Dr. Gene Schuster in the Math Department.

If you are a UTEP alumnus working as an actuary, we would like very much to hear from you. Please give Dr. Schuster a call or write to the Department of Mathematical Sciences.

FROM THE CHAIRMAN'S DESK

As I look back over the twelve months since I wrote the first of these columns, I see much for the Department to be proud of and some causes for concern.

Last year's newsletter seems to have been very well received. Many of you wrote to tell us what you had been doing, and we have certainly enjoyed the opportunity to catch up with you. Let me fill you in on some of the happenings in the department over the last year.

PUZZLER

Given a regular pyramid V with a square base, there is a ball with its center on the bottom of the pyramid and tangent to all edges. If each edge of the base of the pyramid is of length a, find the following quantities:

(1) the height of V;

(2) the volume of the portion common to the ball and the pyramid.

The fact that it is a regular pyramid means the tip is directly above the middle of the base. Answers are on page 3.

CHAIRMAN'S DESK (continued)

During the summer Javier Rojo working with Gene Schuster and Bill Kaigh, as well as several others from the department, proposed a Biostatistical Consulting Laboratory as part of a larger five year proposal to the National Institute of Health to develop a Border Biomedical Research Center. The proposal was funded, and Javier is now busy getting the laboratory organized. We look forward to very fruitful interactions between the Laboratory and the Department over the years to come.

Many other of our faculty have received recognition and grant support for their efforts. Joan Staniswalis, Javier Rojo and Peter Moschopoulos are all supported under MBRS. Javier Rojo is also involved with MRCE. Ralph Liguori is working with Socorro High School with support from an Eisenhower grant. Loki Natarajan has NSF support and Art Duval received a local URI grant.

Another major achievement for us is the return of TEXPREP to UTEP. This program which I judge to be the best summer intervention program for grades seven or eight through twelve began in San Antonio about twelve years ago and has grown in numbers and cities ever since. Mike Gray will be the program director for us.

In other faculty news Joan Staniswalis has been awarded tenure and promoted to Associate Professor, and Peter Moschopoulos who joined us as an Associate Professor in 1989 has been awarded tenure. All of these changes were effective this Fall.

Elsewhere in this newsletter you will read about Club Zero, the student mathematics club. It is very encouraging to see our majors getting together around a common interest in the Mathematical Sciences. My thanks go to Claudia Dominguez, Leticia Monsivais, Julian Viera and the others who put this together. Faculty inspiration and support for the club came particularly from Javier Rojo and Joan Staniswalis.

On a sadder note J. R. Provencio and Fred Strauss have decided to retire at the end of this academic year. Both have given long and devoted service to the Mathematical Sciences Department. We wish them well and we will miss them sorely.

So far then as efforts by the Department for the Department are concerned we have had an excellent year. Unfortunately this has not been matched by the support from outside to which I believe we are entitled. A year ago I wrote to you. *The UTEP administration has been most receptive to our need to improve teaching by cutting class sizes and has provided more faculty positions to make this possible. Nor is the process over. We have been promised four more tenure track faculty lines, one a year for the next four years, and we will keep any lines vacated for any reason in the interim.* Less than six weeks after that newsletter was printed our authorization to recruit for a new position, and a replacement was withdrawn. Worse still is this year's news which is that replacements for our retirees will be at the lecturer level — non tenure track and a five course teaching load. This is not the solution to UTEP's desperate need to provide top quality mathematics instruction to more and more underprepared students. Our present tenure track faculty strength is 26, the same as it was in 1988 when I arrived. Next year it will be 24!

Meanwhile demand for Mathematical Science courses has continued to rise, and we have been forced to cancel classes for lack of funding to provide teachers. Over the 1992–93 academic year (including the summer) about 500 students will not be able to take the course they need.

Resources for the Academic Development Center which takes care of TASP affected students and those who cannot qualify for admission to entry level College Mathematics are even shorter. Class size in the MATH 3011 course is now 270! (punctuation, not factorial!!).

There is no denying that State resources for higher education in general are harder and harder to obtain; nor that there are other calls on these scarce resources besides those of the Mathematical Sciences Department. However, if UTEP cannot afford adequate instruction for the students it admits, even in a subject as basic as mathematics, perhaps it is time to limit admission to the number of students who can be properly taught.
                                    —Simon Bernau

MATHEMATICS CLUB

Club Zero is a mathematics and statistics club founded last year and open to all UTEP students, faculty, and staff. The purpose of the club is to offer students an opportunity to meet and interact with other people who have an interest in mathematics. Club Zero members say the club's name is a tribute to the Mayans' discovery of the concept of zero and a reminder that the club was started from nothing.

Present members include mathematics, statistics, and engineering majors. There are no G.P.A. or other eligibility requirements, and no dues. Club Zero meets once a month, and usually features a guest speaker. Last year's speakers included Professor Schuster discussing opportunities in Actuarial Science, Dr. Gus Simmons from Sandia Labs lecturing on career opportunities in mathematics, and Dr. Ron Harrist from Houston discussing careers in public health. Members are also invited to meet and talk with colloquium speakers visiting the Mathematics Department.

The clubs other activities included weekly study groups, participation in National Math Awareness Week, and sponsoring a booth in the campus-wide Under the Big Top carnival. Club Zero's entry won first prize for the most creative and unique booth. Club members also shared scholarship and summer program information, worked on interesting math puzzles and games, and got together for various social events including an end of semester party. New projects for this year are to gather information on graduate schools, build up a test file for the use of its members, and hold biweekly brown bag lunches with different faculty members.

Last fall, club members helped to host the Alumni Homecoming Coffee. They provided a dart board and held a contest with a mathematical motif. They enjoyed the chance to meet the alumni who returned for this occasion.

Club Zero is very interested in having a variety of guest speakers. If you are working in a career which uses mathematics and would like to share your expeiences, call the Club Zero faculty advisor at 747-6761.

PROVENCIO AND STRAUSS TO RETIRE

Two faces familiar to UTEP math students for many years will be missing after this semester. Professors J. R. Provencio and Fred Strauss will be retiring in May.

Jesus R. Provencio graduated from UTEP (then Texas College of Mines) in 1948. He returned as an instructor in the Department of Physics and Mathematics in 1962. He served 1968-1980 in the Math Department as director of the Inter American Science Program, designed to encourage Hispanic students to pursue careers in math and science. Mr. Provencio says he will miss his students and their questions, particularly in his favorite courses, Differential Equations and Mathematics for Teachers. He plans to publish his research on the problem of math instruction in the public schools and to spend time with his 12 grandchildren.

Dr. Frederick Bodo Strauss joined the UTEP math department in 1968. His most visible activity in the department over the last several years has been devising exercises for the precalculus computer laboratories and overseeing the operation of the labs. His favorite course to teach was one on automata and formal languages, which we don't offer anymore. He says he would miss our architectural gem of a campus except that he plans to hang out here to get a lot of reading and writing done. With children in Silicon Valley and Oahu, Fred expects travel to be a big part of his plans.

ALUMNI INFORMATION

Last fall's Homecoming Coffee was a great chance to meet fellow alumni, faculty and students. Watch for an announcement of next fall's Homecoming activities.

ANSWER TO PUZZLER

1. The height of V is $\frac{\sqrt{2}}{2}a$.
2. The required volume is $\left(\frac{7\sqrt{6}}{54} - \frac{1}{4}\right)\pi a^3$.
According to *The Economist*, January 23, 1993, this problem is from an entrance exam for students who want to enroll in Tokyo University and plan to major in humanities, not science or mathematics.

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DEPARTMENT OF MATHEMATICAL SCIENCES
ALUMNI DATA UPDATE

PLEASE FILL IN THE FORM BELOW SO WE CAN UPDATE OUR RECORDS.

Name:_____Maiden Name:_____

Address:_____

City:_____State:_____ZIP:_____

Home Phone:_____Business Phone:_____

Degree(s) and Major:_____Year(s)_____

Employer:_____

Position/Title:_____

Birthdate - Month:_____Day:_____

LET US KNOW WHAT YOU'VE BEEN UP TO (To be included in the Math Department
Newsletter).

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ENCLOSED IS MY GIFT OF $_____FOR THE 1993 ALUMNI FUND FOR EXCELLENCE.

YES, I want to support the Department of Mathematical Sciences.

Enclosed is my check for:

_____Math Department Excellence Fund

_____C. H. Gladman Scholarship Fund   _____Other._____

_____In Memory/Honor of:_____

      _____

OR you may use:
          _____Mastercard   _____Visa   _____Discover
Card Number:_____

Expiration Date:_____

Signature:_____

Please return to:

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The University of Texas at El Paso
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El Paso, TX 79968-0514

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