

# RISKY BUSINESS

—News and notes on the Actuarial Studies Program—

Department of Mathematics

Spring 1998

The University of Texas at Austin

## From the Director



As I look forward to my tenth (!) year with the actuarial program, I'm delighted to report that I'm still having a ball. The next year or two might dampen that attitude a bit, but all things eventually pass.

It's great to see the job market so strong for our students (*see Sellers' market*, page 4), although with jobs available for students with zero or one exam it's hard to make students believe that they need to pass exams if they want to get jobs. I *think* I've observed a modest decrease in exam-taking, although as usual there were still graduates this year with four or five exams passed.

Random variation produced a relatively smaller group of graduates this year with an exam passed: only about a dozen compared with our usual total of about 20. But the Junior class seems more typical: 23 students now, of whom four had passed a total of 10 exams prior to the February 1998 sitting. And an unusually large number of Freshmen and Sophomores are already in the program, with three Sophomores already having passed an exam prior to the February 1998 sitting. Our new effort to attract Business College students into the program should help increase our output (*see Business College*, page 1). Interested in demographics? Half the students are female, 20% are international, and 85% major in Math.

Why my comment about the "dampener" on my spirits for the next couple of years? The need to completely restructure the program and redesign classes to adapt to the

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## New approach to hiring?

With the arrival of the Year-2000 exam systems of the SoA and the CAS, actuarial employers may need to change their approaches to hiring entry-level student actuaries.

For decades—including when the first actuarial exam covered grammar—employers have been able to find new graduates that have passed two or more actuarial exams. In the current system, standard undergraduate math classes cover the content of SoA/CAS exams

## Business College students sought

In a cooperative effort with the College of Business Administration (CBA), the actuarial program is seeking to attract more CBA students.

To advise on this effort, the Advisory Board of CBA Alumni in the Actuarial Profession (ABCAAP) has been formed, under the leadership of Alan Taper of Towers Perrin in Houston. This spring, ABCAAP sent a letter to incoming CBA freshmen with strong math skills, encouraging them to consider a career as an actuary and to take the regular calculus sequence rather than the business calculus

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## Year-2000 SoA/CAS first exam released

The new first joint exam of the SoA and CAS appears to demand skills beyond those required in the current first two exams. Thus it seems harder to pass, but those that pass will be more likely to succeed as actuaries.

At press time, details of the Year-2000 exam systems from the SoA and CAS were available only for the new first exam—on calculus and probability. But even just that one exam reflects some changes.

A typical question on the current SoA/CAS Exam 110/2 might say that  $N$  is a geometric random variable with mean 12.5 and ask to find the probability that  $N$  equals 5. The sample released for the new first exam asks for the same mathematical computation as follows: Prospective policyholders are tested for high blood pressure, and the mean number tested before finding one with high blood pressure is 12.5; find the probability that the sixth tested is the first with high blood pressure.

The new version of the question requires the student to identify the proper mathematical model to apply—the geometric distribution as counting the number of failures before success—and then to solve the purely mathematical problem that results. This is the essence of modeling. And it adds significantly to the difficulty of the problem.

Unless grading standards change, fewer students will be able to pass the new first exam because of the modeling involved than currently can pass the first two. But those that *do* pass should be better able to choose the proper mathematical tool to apply in a new business situation.

Expenses of *Risky Business* are paid with gift funds from friends of the program.

## Possible futures of actuarial education seen

Discussions on the relation between the actuarial profession and academia have revealed some scenarios for a possibly different organization of actuarial education.

In February, a small international by-invitation symposium was held on expanding and improving relations between academia and the actuarial profession. It was organized by the three leading professional and scholarly actuarial organizations of North America: the SoA, CAS, and the CIA (Canadian Institute of Actuaries). Active participants included such leaders of the profession as the current and in-coming Presidents of the SoA, the current and one past President of the CIA, and the current CAS Vice President whose portfolio includes educational matters.

UT-Austin was among the 14 U.S. programs represented at the symposium. Among the others were the distinguished and renowned programs at Michigan, Wisconsin, Illinois, Iowa, Drake, and Georgia State (all of which have more than UT's one faculty member). This represented the initial meeting of what will develop into a series of other meetings and various task forces and committees.

Many good ideas arose at this first session that could benefit both the profession and the actuarial education and research community. These ranged from simple administrative matters that could keep academics better informed, through policies to involve academics more in the professional societies and to recognize their contributions, to new approaches to increase external funding of actuarial education and research programs.

One type of idea that came up repeatedly was some sort of special recognition of actuarial programs—some people spoke of academic "Centers of Excellence", and some spoke of an accreditation system, for example. This notion contains the potential to help control quality and to help focus external funding. But it also contains a threat to programs like UT-Austin's staffed by only one faculty member. If the profession identified a few U.S. "Centers of Excellence" with critical masses of faculty, or if accreditation required (as some suggested) at least two faculty members with at least Associateship status in the SoA or CAS, UT-Austin as it now stands would not get such special recognition.

This could lead to most students' attending only programs with that special recognition, and many actuarial corporate offices' deciding that external financial support could only be provided to programs with such recognition. Thus many small actuarial programs might disappear.

The Texas actuarial community might expect its UT-Austin program to be on any list of specially recognized U.S. programs, requiring an additional credentialed faculty member—and which almost certainly would in turn require significant new external funding. Such added staff would allow for more classes and possibly even a master's degree program, providing the potential to improve the exam records of our graduates.

### **Kenneth Jameson Plano**

Sophomore math major. Took 100 in February. Interested in drawing, reading, playing pool.

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### **Thuy Nguyen Watauga, TX**

Senior math major. Passed 100, 140; took 110 in February. Interested in sports, architecture.

## Placement "sister"

Carrie Weber has succeeded Lorelle Jacobs as the Mathematics Department staff person assisting with the crucial task of



## Business continues ...

sequence (inadequate preparation for actuarial exams and later math classes).

Jim Daniel has met with the staff that advises CBA students to educate them about the actuarial program and how CBA students can participate in it. Materials are also being prepared for distribution to incoming CBA students at their summer orientation sessions and to the CBA advising offices.

It seems likely that CBA students will soon have minors in addition to their major, and the actuarial program has been encouraged by the CBA to promote an actuarial minor within Mathematics.

Since the 1989 return of the actuarial program to the Mathematics Department, the vast majority of actuarial students have gotten Mathematics degrees; among the 10-to-15 percent getting CBA degrees, however, have been some of the program's strongest students. If the program can attract a dozen or so strong students each year from the roughly 800 CBA freshmen, a more balanced mix of graduates will result.

Besides Taper, ABCAAP members include Bryan Avant (Buck Consultants, Dallas), Wayne Barnard (American General Insurance, Houston), Frank Broll (American National Insurance, Galveston), Mark Callahan (X.L. Insurance, Bermuda), Rick Davenport (Deloitte & Touche, Dallas), Alan Jacobson (Hewitt Associates, Irving), Richard Mallett (Watson Wyatt Worldwide, Dallas), Lorie Pate (USAA Insurance, San Antonio), Matt Sicking (Ernst & Young, Dallas), Mark Trieb (Milliman & Robertson, Dallas), Linda Walker (William M. Mercer, Houston), and Greg Young (Coopers & Lybrand, Dallas).

actuarial job placement.

Lorelle, who retired in early 1997 after handling actuarial placement from its beginning in Mathematics in 1989, had been dubbed the "Placement Grandma". That makes Carrie—a 1997 UT-Austin graduate with a Psychology B.A.—the "Placement Sister".

Carrie has taken on several other duties in addition to those Lorelle had, so less of her time is devoted to placement. But she does a fine job helping employers arrange interviews and handling the sign-up sheets. For interview scheduling, contact her at 512/475-8138 or by e-mail as

cweber@math.utexas.edu .

## Director continues ...

new Year-2000 exam systems of both the SoA and the CAS.

The SoA is falling well behind its schedule in releasing enough details on the new syllabi to allow me to start the restructuring and redesigning. I hope that both organizations release details yet this Spring. That would allow me to propose new classes by the coming Fall and have them approved by The University in time to offer them for the first time in Fall 1999.

After a couple of years the classes should have stabilized, we'll know how employers are adapting to the exam records of students in the new system (see **New approach**, page 1), and we'll know whether we need additional teaching resources for the program to survive (see **Possible futures**, page 2). A busy and crucial couple of years—but that keeps life interesting.

*Jim Daniel, Director*

## Reunion held; T's available

A small (but elite!) group of alums held a reunion November 21 at the UT Alumni Center in Austin, recognizing the 85th year since UT offered an actuarial class, the 50th since UT announced an actuarial program, the 40th since the program moved to Finance, and the ninth since it returned to Mathematics.

Attendees seemed to have a great time, thanks to the efforts of organizers Bryan Avant, Linda Ezell, Carl Khor, Tim Lee, Valerie Lopez (Chair), Anna Mechem, George Sanger (Web-master), Toby Tobleman, and Susan Van Horn. Special thanks go to Buck Consultants, Towers Perrin, Carl Khor, Toby Tobleman, and the UT actuarial program for financial support. And especially to Valerie Lopez for the energy and dedication that made this happen.

Left over from the event are five extra large white T-shirts, on the front of which are emblazoned (in burnt orange, naturally) the words *1997 UT Actuarial Science Greater Than or Equal To Reunion*. The highest bidders or best commentators are welcome to these, certain to amaze and puzzle friends and family alike. Send your sealed bids or comments to Jim Daniel; entries are *not* under the protection of Coopers & Lybrand, and the decision of the judge is final.

*Risky Business*

## New Associates

Starting with the 1994 issue, *Risky Business* has attempted to identify all new Associates that have come through the UT program since its move to Mathematics. No attempt is made to recognize other important status changes, however: Fellowship, membership in the Academy, marriage, parenthood, Lotto winnings, and the like. This is just a one-person program, remember!

To the best of our knowledge, only the following people that were UT actuarial students since fall 1989 have become an Associate since last year's *Risky Business* (omissions are regretted, and corrections will be appreciated).

Ali Ishaq, ACAS; CNA Insurance (Chicago)

Bill Jones, ACAS; USAA Insurance (San Antonio)

Ethan Mowry, ACAS; USAA Insurance (San Antonio)

Chris Norman, ACAS; USAA Insurance (San Antonio)

Brian Ryder, ACAS; Texas Department of Insurance (Austin)

*Congratulations all!*

### *Brandy Jones*

*Austin*

Junior math major. Passed 100, 140.

Interested in reading, racquetball, hiking.

### *Michael Musselman*

*Houston*

Senior math major. Passed 100, 140.

Interested in baseball, sports officiating, movies, history.

## Hiring continues...

interest theory—not all of which are standard undergraduate classes at all colleges and universities. And the higher exams of course cover uniquely actuarial material likely to be taught only by the 60 or so full actuarial programs in the United States and Canada.

The number of exams passed by even the strongest students will also decrease. At UT-Austin, for instance, over the past decade students with at least two exams have averaged 3.1 SoA exams (73 credits) or 2.5 CAS exam pieces passed. These numbers are likely to be more like 1.3 new SoA exams or 1.2 new CAS exams, *for the same very strong students that now average the 3.1 or 2.5*.

These two effects mean that, in a pool of the same quality students that have previously been hired, employers will find far fewer that have passed more than one exam. To identify strong job candidates, it may be necessary to look more closely at grade point averages and grades in specific classes.

That approach may also be necessary even when recruiting at schools such as UT-Austin with strong actuarial programs, since students would need to choose an actuarial career far earlier in undergraduate school in order to take the classwork needed to prepare for more than one exam while still an undergraduate. Recently, many strong students have decided on actuarial careers in the midst of their junior year and still been able to pass two or three exams by job-placement time. After 2000, that will be very unlikely. [But see **Possible futures**, page 2.]

### *Yat Ka Anthony Si*

*Hong Kong*

Freshman CS major. Taking 100, 140 in May. Interested in travel, canoeing.

## Join the UTAAA

New members are sought for the UT Actuarial Alumni Association (UTAAA), which continues to serve present students while keeping recent alums in contact with one another.

As usual, the UTAAA organized a Career Info Panel last fall to teach current students about the different lines of business in the actuarial world. In the Spring semester, mock interviews were held to prepare students for job interviews; students were able to benefit from mock interviews with one of the handful of recent alums volunteering their time.

The UTAAA continues to recruit members and update its member directory. Members should have taken coursework since 1989 when the actuarial program moved to the Mathematics Department under the direction of Jim Daniel. Departing students can obtain a membership form from him, while recent alums interested in joining and in helping with activities should contact UTAAA coordinator Lillian Cho at Watson Wyatt Worldwide in Dallas (2121 San Jacinto St., Suite 2400, Dallas, TX 75201; 214/978-3572; e-mail as

[lillian\\_cho@watsonwyatt.com](mailto:lillian_cho@watsonwyatt.com)).



# Focus on students

## Financial aid Honor Roll

Outstanding students receiving merit-based financial aid from the actuarial program during academic year summer 1997 through spring 1998 included:

Actuaries Club of the Southwest Scholarships: Cindy Chang, Thuy Nguyen, Roz Rakowitz

AEGON Insurance Group Actuarial Mathematics Scholarships: Thuy Nguyen, Robert Tomlinson

William W. Hand Memorial Actuarial Scholarship (American Society of Pension Actuaries): Chris Groendyke (Fall), Amanda Priesmeyer (Fall)

George R. Jordan, Jr., Actuarial Scholarships: Alok Dhital, Tiffany Gresco (Spring), Chris Groendyke (Fall), Holly Hamamcy, Aaron Hodges (Spring), Janet Jardin (Spring), Brandy Jones (Spring), David Li (Spring), Shariq Minhas (Fall), Michael Musselman, Thuy Nguyen, Amanda Priesmeyer (Fall), Robert Tomlinson, Melissa Whitesell, Terence Yiu

Milliman & Robertson Standard of Excellence Actuarial Scholarship: Melissa Whitesell  
C. Mitchell Co. Actuarial Scholarship: Stella So

Rudd and Wisdom Actuarial Studies Scholarship: Michael Musselman

Scruggs Consulting Actuarial Scholarship: Cindy Chang, Chris Groendyke (Fall)

D. W. Simpson & Co. Scholarship: Roz Rakowitz

Southwest Actuarial Forum Scholarship: Robert Tomlinson

USAA Actuarial Scholarship: Holly Hamamcy

Watson Wyatt Actuarial Scholarship: Stella So

Eugene Wisdom Memorial Scholarship in Actuarial Studies: Terence Yiu

Actuarial Studies Excellence-Awards (Fireman's Fund and USF&G merit-based loan program to assist the Texas Department of Insurance): Alok Dhital (Summer, Fall, Spring), Ying Dong (Fall), Shariq Minhas (Summer), Thuy Nguyen, Terence Yiu (Summer, Fall, Spring)

Texas Department of Insurance Summer Internship (Fireman's Fund and USF&G program to assist the Texas Department of Insurance): Cindy Chang, Alok Dhital, Stella So

Texas Department of Insurance Long-semester Internship (Fireman's Fund and USF&G program to assist the Texas Department of Insurance): Fall—Alok Dhital, Terence Yiu; Spring—Andy Fritz, Ya-ying Huang, Billy Onion, David Li.

*Congratulations to you all!*

## Sellers' market: many jobs, many \$'s

An extreme sellers' market has created rapid inflation in entry-level job offers in the last several months and has provided entry-level positions for more students than usual.

Over the last decade, on average about a third of students with only one exam and only rare students with no exams have been offered entry-level positions. Any such offers would provide salaries in the \$29,000 to \$32,000 range in 1998 dollars.

In the last couple of years, the success rate for students with one or zero exams has been higher than this. In May 1997, for example, all students with one or zero exams that had completed the life contingencies classwork found jobs; in fact, these eight people had 14 offers among them. The salaries were in the expected range.

December 1997 graduates saw a striking change. The four students actively on the market through the fall had nearly 30 job offers, including about 14 to the two students with only one exam. And the salary offers inflated rapidly as employers competed for the students.

The dramatic salary inflation has continued into the offers for May/August 1998 graduates. While one-exam students are receiving the expected offers in the low 30's, they

## Student club has educational year

The Actuarial Science Club has always served as a tool for students to explore the opportunities available in the actuarial profession. This year, I believe the meetings proved educational as well as entertaining for all those who attended. Of course, we have the speakers from the various companies to thank for this. These people represented many firms including Rudd & Wisdom, Towers Perrin, Hewitt Associates, American General, D.W. Simpson, Principal Financial Group, and Buck Consultants.

Although I enjoyed serving as the Actuarial Science Club President, there were many people who contributed to the success of the club. I would like to take this opportunity to recognize them for their efforts. First, I would like to thank Dr. Daniel for everything he has done for us this year from maintaining our web page to advertising the meetings to his students. I would also like to extend my gratitude to the various speakers. You made the club a valuable resource for our members. Of course, I would also like to thank our Treasurer, Melissa Whitesell, our Natural Sciences Council Representative, Tammy Rowland, and all of the students who attended the meetings. I hope you all gained as much from the experience as I did and I wish you well in your future endeavors.

*Rosalind Rakowitz*

**Terence Yiu**

**Hong Kong**

Senior math & finance major. Passed 100, 110, 140. Interested in soccer, ping-pong, music, and his Web page.

are also getting offers some \$10,000 higher; the highest salary isn't always the one accepted, of course.

Next year's predictions of typical salary ranges—always based on the previous year's offers plus slight inflation—may have to say "One exam: \$32,000 to \$50,000."