

**ACTUARIAL RESEARCH CLEARING HOUSE  
1996 VOL. 1**

**A Regional Consortium for Actuarial Education**

**Matt Hassett, PhD, ASA, Arizona State University**

**Mike Ratliff, PhD, ASA, Northern Arizona University**

**0. Introduction.** Many universities in the United States have small actuarial or pre-actuarial programs in which one or two faculty members work with mathematics majors who express interest in the actuarial profession. In this paper we will describe how richer actuarial programs can be provided if a number of schools with smaller programs combine resources by forming a regional cooperative or consortium. We have already formed our own consortium, the Southwest Actuarial Education and Research Consortium (SWAERC). The strategies proposed here have already been used in SWAERC, and we will illustrate each of them by describing our own experience with it.

**1. The need for regional groups.**

**a. Student demand for actuarial programs is widespread.** Many students in the United States do not discover the actuarial profession until late in their careers as undergraduate mathematics majors. When Arizona State University had no actuarial program in the late 1980s, there were still at least five students per year becoming interested in actuarial careers and beginning work on exams 100 and 110. This demand appears to be constant, and cannot easily be served by major actuarial schools in other states.

**b. Employers seek actuarial students in a wide variety of locations.** Although our region is not thought of as an actuarial center, Phoenix has actuarial groups from four major consulting firms, one major casualty company, five health insurers, two life companies and a number of local pension firms. Las Vegas and Tucson also have actuarial employers. There is a constant demand in the region for actuarial students and for actuarial courses for students who are employed and working on associateships.

**c. Resources at each school are limited.** Faculty support at each school in our region consists of one lead faculty member who has voluntarily become familiar with the exam structure (or actually become an ASA) and one other faculty member who has agreed to help out. No school in the region is able to support a larger program with specialists in different areas.

**2. The regional group solution.** To satisfy the student and employer demand in our region, we have pooled our resources using electronic communications, distance learning and semi-annual conferences.

**Pooled resources.** SWAERC now has five member schools. Arizona State University, Northern Arizona University and the University of Nevada at Las Vegas each have a professor who is a fairly recent ASA. Fort Lewis College and the University of Arizona each have a faculty member who knows the exam structure and actively helps students with exams. Every member school has at least one additional faculty member who works with actuarial students. Thus we now have three ASAs and a total of ten or more concerned faculty.

**Shared programs** The group has set up the following shared programs:

**a) Distance learning using TV links.** The Arizona universities have television classrooms designed for both originating and receiving televised classes. During the last year, Northern Arizona University offered a year sequence covering the syllabus of Exam 150. This class was available on television to students at Arizona State. In return, Arizona State offered courses in Interest Theory (fall) and Graduation (spring) to both campuses. This linking strategy doubled the number of courses in actuarial science which would otherwise have been available on each campus.

The course sharing strategy was not completely without overhead costs. It was clear that students on each campus would have questions which were better answered in person than over the phone or in the limited TV class time. Thus the faculty involved on each campus decided to sit in on each others courses and be available for questions from both courses offered each semester. However, the work involved in sitting in and seeing students was minimal in comparison to the effort of offering an additional lecture class. The amount of work done in bringing the extra class to campus on TV was roughly 20% of the amount required to offer the course locally.

The distance learning program will be implemented differently in the coming year. During the past year we learned that the working actuarial students in Phoenix will not take two courses at night in one semester. This year we will offer only one actuarial class each semester. The first, Survival Models, will originate at Arizona State in the fall. The second, Risk Theory, will originate at Northern Arizona in the spring.

Since the Arizona Universities are supporting distance learning efforts, we were not billed for the use of the TV studio classrooms or links. There are also costs here. Studies have estimated the cost of a studio classroom at \$145 per hour. The cost of the TV link here is \$24 per hour. Current enrollments could not support those costs if subsidies were not available.

**b) Regional conferences.** There has been a regional conference each semester since SWAERC was founded. The fall conference focuses on actuarial research and program development, and is attended by actuarial faculty and some graduate students. The spring conference is held in Phoenix, which has the largest group of working actuaries in the region. This conference has a number of sessions in which real actuaries discuss their jobs and employers tell students what will be expected of them if they choose to enter the actuarial profession. The spring meeting is attended by students, working actuaries and actuarial faculty from the region. Since the emphasis is on career development, there are also sessions dealing with examination issues. A copy of the spring meeting program from Fall 1995 is attached as Appendix A.

Student reaction to the spring conference has been very positive. Meeting real actuaries is much more informative than reading about them, and this experience is not easily arranged for most students in our region.

**c) Common employment list.** Each spring the president of SWAERC compiles a list of all SWAERC graduates available for employment and sends out a mailing to approximately 200 employers in the western United States. This year's list contained 12 names and was of much more use to employers than five separate lists.

**d) Course reciprocity agreements.** Northern Arizona University and Fort Lewis College have negotiated reciprocity agreements which would enable a student to spend a semester visiting the partner school with normal progress toward graduation. This allows course sharing for students who do not have TV linking.

**3. Benefits of the consortium.** The consortium has proved beneficial in the following ways, some of which have already been discussed at length above.

**a) Wider access to courses in actuarial science.** TV links and reciprocity agreements give students in the region access to a wider range of actuarial courses than previously.

**b) More access to working actuarial professionals for students in SWAERC.** This is done primarily through the spring conference.

**c) Improved job placement opportunities.** This is done through the spring employment mailing.

**d) Creation of a faculty group with diverse and complementary skills.** The actuarial faculty in the region have differing interests, and each adds something to the group.

The faculty at Fort Lewis College and University of Arizona have special interests in the new approaches to calculus which are becoming widespread. Their expertise is most helpful in analysis of new strategies for dealing with the changed Exam 100.

The actuarial professor at Northern Arizona University is an ASA. He has been supervising the region's only Master's program since 1989. He is the region's specialist in offering the life contingencies course, which is available at Arizona State on TV. In addition, he is the regional specialist in doing actuarial research in Mathematica.

The actuarial professor at Arizona State is an ASA and a former CMO consultant who offers the TV link course in interest theory and emphasizes the use of spreadsheets in applications. He has passed Exam 220 and is working on strategies for helping students in the region with investment material.

The actuarial professor at UNLV is an ASA. He works closely with a colleague in statistics on research projects involving new methods in graduation. UNLV appears to have the strongest research focus in the region.

Students in the consortium schools now have access to faculty who can keep up with the changes in the beginning exams, offer courses in all current ASA examinations and sponsor research in life contingencies, graduation methods or investments. No single school could do all of this.

**e) Creation of a supportive group of colleagues.** Many actuarial program directors must work in relative isolation in the midst of colleagues who either do not understand the actuarial profession or do not think that the best students should go into it. Our consortium gives a group of colleagues who understand the profession, understand what we are trying to do and support us.

**4. Plans for the immediate future.** The consortium is working for us, and we plan to do more with it. This summer we instituted a summer meeting, which was our annual planning meeting for the year. We will attempt to add other schools in our region to the consortium to further increase our resource base in the southwest. We will also look for more research partnerships across schools and attempt to assist such partnerships in obtaining funding. Given the changes in Associateship requirements for the SOA, we are beginning to investigate how to provide support for students in the region on core level exams.

**5. Regional models in the long term.** The major output of actuarial students and research in this country comes from a limited number of strong actuarial schools with large programs. However, there is still substantial regional demand for actuarial courses and access to research far from the major centers. We have shown that schools with only one or two actuarial faculty can

offer a great deal of instruction and research through regional grouping and distance learning. This could be vastly improved if the output of the major actuarial schools were systematically available to regional groups. Our students might be best served if high quality actuarial science courses and research contacts were available nationally, with local actuarial faculty serving as coordinators and helpers.

**Southwestern Actuarial Education and Research Conference  
Spring Meeting , March 2-3, 1995**

**Program**

**Thursday**

**12:40-2:30 PM** Room PSA 446 *Technical Presentations*

Dr. Michael Ratliff, ASA, *NAU*: Qualitative Influence in Simple Linear Regression

Dr. Rohan Dalpatadu, ASA, *UNLV*: Bayes Estimation of Survival Models

Dr. Ashok Singh, *UNLV*: On Assessing Normality of the Sample Mean

Dr. Matt Hassett, ASA, *ASU* : Introduction to Mortgage Securities

**3:15-4:30 PM** Room COB 128 *Observation of televised class*

**Friday morning** Room ECG 238:

**9:40 AM** Dick London FSA: An Overview of the Actuarial Exams

**10:40 AM Panel** : Innovations in calculus and the changes in exam 100

President: Dr. Ray Williams, Fort Lewis College

Dr. Michael Ratliff, ASA, *NAU*

Dr. Eric Kostelich, *ASU*

Dr. Janet McShane, *NAU*

Dr. Ted Laetsch, *U of A*

**Noon Lunch break**

**Friday afternoon** Room PSH 153:

**1:40 PM Keynote talk**: Dr. John Zicarelli FCAS, Scottsdale Insurance: The Casualty Actuary

**2:40 PM Panel**: What a beginning actuary does

Moderator: Bob Maule, FSA

Janice Brookshire, Arizona Physicians IPA

Scott Paterik, Nautilus Insurance

Matt Rambo, Oxford Life

Andy Ribaud, ASA, The Wyatt Company

**3:40 PM Panel**: What do employers want in an actuarial student?

Moderator: Ron Witt, ASA

Larry Baber, FSA, Milliman and Robertson

Sandi Gibson, Blue Cross

Jim Gordon, FSA, The Wyatt Company

Brian Januzik, ASA, Oxford Life

**Evening at the ASU University Club**

**5: 00 PM** *No host cocktail hour: Phoenix Actuarial Club and Conference Participants*

**6:30 PM** *Phoenix actuarial club dinner meeting*

Speaker Dick London : The Future of Actuarial Education

