



SOCIETY OF ACTUARIES

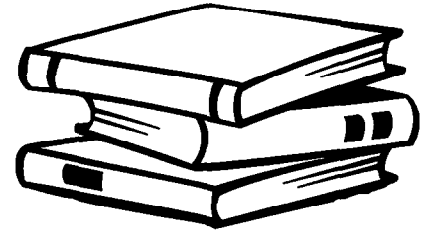
Article from:

The Actuary

October 1995 – Volume 29, No. 8

Redesign of E&E brings members' concerns

by Cecil Bykerk and Marta Holmberg



In early August, the Society of Actuaries (SOA) Board of Governors Task Force on Education issued a report to the membership. The report concluded that fundamental change to the SOA's education system was necessary to ensure that actuaries will have essential skills and knowledge needed to operate most effectively in the future. Steps taken to enhance the actuary's skills will better equip the actuary to meet future professional challenges that are more rewarding and valuable to the actuary and to employers. The Task Force report describes the educational changes viewed necessary. If you haven't read the report yet, we encourage you to do so.

From the input we have received so far from actuaries and employers, we can discern certain common themes. A particular area of concern is the first actuarial exam. Members are telling us that the first exam should do the following:

- Attract qualified candidates to the profession
- Introduce candidates to the nature of the profession
- Test applications of mathematical and statistical methods with a rigor consistent with current exams
- Select candidates who can meet the mathematical demands that are a critical part of what distinguishes the actuarial professional from other business professionals

When the SOA began including calculus (1909) and statistics (1925) on its syllabus, these subjects were not widely available. College students attaining math degrees would likely have had little exposure to these subjects that are at the foundation of actuarial techniques. Now it is

Sample Question

A risk averse decision-maker is faced with a random loss with a uniform distribution over the interval $0 < X < \$10$. If he/she wishes to pay a premium of \$2, then the optimal coverage requires a deductible of \$ n . Assuming no expenses, find n .

common for students to take calculus in high school and to study statistics as undergraduates. The general availability of these subjects should enable the SOA to concentrate its limited and valuable volunteer resources where the need is especially great and outside sources are much more limited. That concentration does not mean we abandon all testing of calculus or statistical concepts, but that we approach testing from a more practical perspective. What does that mean about the first exam?

Work on defining and shaping the first exam is far from complete at this point. We can expect a sharper picture to emerge as development continues. However, the following current thinking may help demonstrate that your concerns are being addressed.

The first SOA examination that a candidate takes should provide exposure to certain basic principles central to actuarial practice. A business context framing the questions asked conveys to candidates that this is an applied science; that practical applications of mathematical techniques are essential. Candidates who want to concentrate on mathematical theory but have little interest in meaningful application should not be misled.

Elementary principles of the mathematics of risk and applications of the fundamental tools for quantitatively assessing risks—tools such as calculus and probability—can be introduced at the earliest stages of the formal education process. Synthesis of ideas and critical/analytical thinking can be stressed, using practical problems that

arise in actuarial practice. Case studies or articles from general business publications can be used to frame exam questions.

Critical aspects of calculus and probability—fundamental tools for analyzing risks—would be tested in this context, as well as elementary principles of the mathematics of risk. The candidate passing a first exam of this nature demonstrates mathematical competence and has a better appreciation of what may be encountered in everyday practice. He or she approaches the following examinations with an initial framework to fit the tools and knowledge being acquired, thereby more readily acquiring the new concepts and more quickly providing work of real value to the employer.

This is clearly just a thumbnail sketch of what we might expect for the first examination.

A session is planned for the Annual Meeting in Boston (Session 107, Update on the Redesign of E&E, Tuesday, October 17, 2:30 - 4:00 pm). By then, we will know more about the proposed nature of the first exam and about the rest of the proposed structure and syllabus for the basic education system. Join us at the session to learn more and to share your views.

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