

# Quality Matters: Our Approach to Educational Quality

The Society of Actuaries' (SOA) purpose – our commitment to our members, the organizations that employ them, and the public – is to educate trusted financial and business advisors who can help organizations address risks associated with uncertain future events. But risk is not neatly contained. It affects all industries where actuaries work, all professional practice areas, and all geographies. Risk issues grow at a pace and scale that reflect the increasing complexity and globalization of the economy.

To fulfill its purpose, the SOA offers training to actuaries that is intended to give them the skills needed to address the spectrum of risks they may encounter and address in their professional lives, regardless of the industry, practice area, or location where they may work. We have done this for more than 125 years and are the largest membership society in the actuarial profession in the world today.

From the start of credentialing in 1897 with two examinations, the SOA has created new professional specialty tracks and credentials as the profession has expanded and the range of expertise required by employers has widened. We've also created several credentials, most notably our primary credential, the Fellow of the Society of Actuaries, and the Associate of the Society of Actuaries. In 2007, the SOA created the Chartered Enterprise Risk Analyst (CERA), a specialty credential focused on the emerging field of enterprise risk management and gave it to a consortium of 14 actuarial societies in the world to offer globally.

In 2013, the Society of Actuaries launched a new property/casualty (or General Insurance (GI)<sup>1</sup>) track to Fellowship, adding specialty training for a discipline practiced by about one in every five actuaries today and growing rapidly as the world's economy grows and becomes more complex.

The SOA General Insurance track is designed to meet the needs of candidates and their employers both domestically and around the world and their employers in an industry where risks easily cross national borders, multi-national insurance carriers play an increasingly significant role, and where the international regulatory framework grows increasingly interconnected. For the SOA, it means that we can now offer candidates training in all practice areas on a single educational system. Before our property/casualty (GI) track was launched, the SOA was the only global broad-based actuarial education organization that did not provide training and recognition for this important specialty area.

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<sup>1</sup> Property-Casualty insurance is commonly known outside the U.S. and Canada as “General Insurance” or Non-Life Insurance.

## SOA Fellowship Specialty Tracks: A Proven System for Providing High-Quality and Specialized Actuarial Training and Credentialing

The SOA's education system is designed to provide breadth and depth – ensuring that Fellows of the Society of Actuaries possess a solid grounding in the wide range of risk issues they may encounter in their careers, while offering specialty tracks that enable actuaries to develop in-depth expertise in an area of specialization. The SOA currently offers specialty tracks in individual life and annuities; group and health insurance; finance; retirement benefits, investments; and general insurance (or property/casualty insurance). The SOA has added specialty tracks as actuarial practice grows and spreads to new fields, and we expect to continue to do so in the future as the profession continues to grow.

What ties the different SOA specialty tracks together is a commitment to in-depth exploration and training in a recognized actuarial discipline and an uncompromising commitment to the highest quality and rigor in our curriculum and examination development and our exam grading. Passing SOA exams is difficult; candidates tell us that they study (on average) over 400 hours for each Fellowship examination. Passing rates for SOA examinations typically range from 35 to 55 percent of candidates taking the exams. Clearly, achieving Fellowship in the Society of Actuaries is a mark of intellect, discipline, and learning that distinguishes our members and is prized by employers.

To develop the General Insurance (or property/casualty) Track, the SOA applied its established blueprint for educating and assessing actuaries. Key elements of this globally-recognized system include:

**Deep expertise.** Each track is developed by a curriculum committee, question writers (also called “item writers”) and graders with extensive experience in the practice area and in actuarial education and assessment. For example, the property/casualty actuaries involved in the SOA General Insurance Track curriculum, exam writing and grading have an average of over 20 years of experience in the field. While this field experience is critical, it's also very important that these individuals have a strong understanding of best practices in adult education, learning assessment, exam construction, and grading. All SOA question writers, curriculum committee members, and exam graders are required to complete regular training in these concepts. The training is designed and provided by experts and education professionals with deep experience and backgrounds in university and professional-level education. Day-to-day operations of the SOA's education system are supported by a 130-member strong staff of education, research, and association professionals, including actuaries, academics, educational program administrators and many others.

**High standards of actuarial competency.** As noted, the SOA's education system is staffed (by volunteers and staff) by individuals with deep professional competency in the subject matter and adult education. An additional and central principle of the system is that each specialty track must have similar levels of rigor and difficulty; there should be no real or perceived difference in the relative ease or difficulty of specialty tracks. Each exam pass mark is set according to the standard of what a qualified actuary in the field should master, and this standard is absolute – there are no pass/fail quotas and grading is not curved. And each SOA exam, regardless of track, is required to meet a consistently high level of cognitive complexity as measured by pedagogical taxonomies. We ensure that every Fellow of the Society of Actuaries, regardless of the specialty track they follow, meets the same high standard of knowledge and performance that employers and the public have come to expect from our members.

**A variety of learning methods that replicate real-world environments.** The SOA’s educational pathway emphasizes analysis and deep understanding, just like the real-world problems our Fellows encounter every day. SOA exam questions require candidates to “evaluate,” to “assess,” to “compare and contrast,” and in other ways to demonstrate that they have a deep and lasting grasp on the material they have studied. SOA Fellowship exams cannot be passed only by giving the “correct answer.” To be successful, a candidate must also demonstrate that they know how to analyze an actuarial problem and to reason their way to the (or a) solution. For this reason, the SOA curriculum and exams include questions and online modules that simulate the experiences actuaries will face in their work environment and require demonstrations of real understanding.

**Rigorous quality control.** Prior to drafting questions, new question writers go through two days of training to ensure their work meets SOA expectations, and the SOA also conducts periodic retraining sessions. Before going to the specialty track general officer for final review, each SOA exam question undergoes at least three rounds of review by a group of experts that includes other question writers and the exam chair. The last step before final approval – the central review – includes a member of the SOA’s Education Executive Committee who acts as an independent observer to ensure consistency of each exam with SOA Fellowship requirements. The grading system includes a similar focus on quality control, beginning with grader training and including a thorough “double review” process for candidates’ answers. For our general insurance exams, each answer submitted by a candidate is reviewed by two independent graders who are guided by a comprehensive grading rubric. Where graders come to different conclusions (and exams are at or near the pass/fail mark), the exams receive a third independent review. In addition, all graders evaluate alternative solutions for inclusion in the grading rubric.

In addition to this control of the exam grading process, the SOA has also invested significantly in software and processes intended to detect any possible copying or plagiarism that may be attempted by candidates in our online module submissions (essentially, “open-book” tests). All candidate submissions received for these assessments are compared to all previous responses received, and any that show evidence of duplication are immediately reviewed for verification and possible discipline.

An additional step, and one the SOA may be alone in undertaking, is to conduct, after every Fellowship examination sitting, a survey of all candidates who sat the exam. In this survey, candidates are asked to comment on the exam they just completed, on the fairness of the questions, the value and relevance to their work of the curriculum they just studied, and in other ways to assess the performance of our examination system. The SOA’s Education Executive Committee receives these survey results and uses them to identify problems that may arise and for continuous improvement of the examination system.

Finally, the SOA also periodically retains experts outside the actuarial profession (e.g., economists and investment specialists, typically academics working, teaching, and researching in these fields) to review the SOA’s curriculum and verify that we are using the most up to date and appropriate readings and to update our curriculum where needed, in fields that are related, but not directly of, actuarial science.

The SOA takes very seriously the need for high quality control and has invested heavily in hiring professional staff, training volunteers, establishing rigorous processes, and installing computer systems that can help us maintain and protect this commitment.

**BY THE NUMBERS:** Highlights of expertise and experience of the SOA General Insurance

Track curriculum creators, question writers and graders:

- Senior actuaries with hundreds of years of property-casualty actuarial experience
- Senior actuaries with years of experience signing statutory statements of actuarial opinion for property-casualty insurance companies
- Senior actuaries with decades of property-casualty actuarial exam committee experience

### The SOA's General Insurance Track: Rigorous Education, Practical Experience

While the General (property/casualty) Insurance Track is our latest specialty track, property and casualty insurance is not really new to the SOA.

An SOA education provides its Fellows a solid baseline grounding in all areas of actuarial practice. This is intended to broaden actuaries' perspective, to give them tools to see actuarial problems of one type in relation to others, and to help them decide which specialty areas best fit their interests and career aspirations. As such the SOA has included general insurance topics and fundamentals in all members' education for decades through the Fundamentals of Actuarial Practice Course and its predecessor exams. That said, the new General Insurance Track offers a pathway to deep property and casualty insurance specialization that offers exceptional training in the discipline.

The General Insurance track was created and is administered by professionals with extensive experience in property and casualty insurance (see inset). It includes the most up-to-date textbook available on general insurance actuarial analysis, commissioned especially for our track, as well as the Applications of Statistical Techniques online e-learning module, a new module that provides practical experience solving real-world actuarial problems using the R environment for statistical computing. We also require completion of a new Introduction to General (property/casualty) Insurance exam that readings and information from the Chartered Property Casualty Underwriter (CPCU®) curriculum provided by The Institutes, the leading general education institution for the U.S. property/casualty insurance industry.

In keeping with the SOA's commitment to comparable levels of rigor and difficulty across all specialty tracks, the General Insurance track requires nearly 1,700 hours of study and examination to achieve Fellowship. This includes post preliminary examinations and Validation by Educational Experience (VEE). Pass rates for the exams administered to-date are in line with the average pass rate for other SOA Fellowship exams.

For the General Insurance track, the SOA has paid particular attention to meeting practice and regulatory requirements set forth in the United States. The SOA is currently seeking acknowledgement from state regulators that SOA Fellows completing our General Insurance track (and who satisfy other applicable qualification requirements) would be accepted as signers of NAIC prescribed property/casualty Annual Statement “blanks.” Apart from the prescribed regulatory opinions, the qualification standards for practice in the US recognize that an actuary completing the SOA General Insurance track will have satisfied the basic education requirement for issuing statements of actuarial opinion in property/casualty practice.<sup>2</sup>

While the SOA General Insurance Track provides a depth of expertise that is the equal of any other actuarial Fellowship designation available in the world<sup>3</sup>, it is not the SOA’s intent to replicate existing offerings. Doing so would provide no added value to the profession or the organizations that employ general insurance actuaries. The unique benefits of the SOA’s General Insurance Track to the profession, employers and candidates include:

**Increased focus on global risk and the global regulatory environment.** While meeting all requirements for the U.S. and Canadian markets, the SOA General Insurance track also intends to prepare actuaries to address actuarial issues wherever they may work in the world. The SOA’s education pathway as a whole is being used by more candidates globally than any other in the world; we are confident that over time, our General Insurance (or property/casualty) track will assume its place as one of the world’s leading tracks for this practice area, just as our other specialty tracks have already done. For employers, the SOA General Insurance track provides best-in-class education, along with the confidence that comes from having staff who have attained the most recognized and respected actuarial credential in the world. For candidates, the SOA General Insurance track offers them the opportunity to prove their capabilities in a world-renowned, rigorous training program and makes them members of the largest global network of actuarial professionals. It prepares and positions them exceptionally well for overseas opportunities in an increasingly globalized market and gives them a passport to actuarial opportunities around the world.

**Enhanced attention to interconnected risk across practice areas.** The SOA’s commitment to ensuring its Fellows are well grounded in all areas of practice is beneficial beyond the educational opportunities it provides to candidates. Seasoned practitioners benefit from increased integration of practice development and research among the General Insurance track and other SOA specialty areas of practice. Topics ranging from risk management to financial reporting to pension funding have all benefited from cross-disciplinary research under the SOA umbrella. The addition of its General Insurance track enables the SOA to conduct integrated research that will be especially valuable to actuaries in multi-line companies.

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2 The *Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States* prescribes the basic education requirement for issuing a statement of actuarial opinion in an area of practice covered by an SOA specialty track; the requirement is satisfied when the actuary completes the specialty track and attains the highest possible designation (Fellowship) offered by the SOA.

3 The Institute and Faculty of Actuaries (IFoA) grants full, mutual recognition for all SOA Fellowships, including those granted in every specialty track offered by the SOA.

**Greater flexibility – and the benefits of consistency – for actuarial candidates.** Previously, general insurance candidates in the U.S. were required to choose their specialty track before beginning their path toward Fellowship. The SOA system enables candidates to begin their path toward Fellowship and achieve their ASA designation before being required to select a specialty track. It also gives them the opportunity to stay within a single, consistent program of study throughout the credentialing process. The SOA education system is a coordinated, consistent program from beginning to end. A candidate studying to be a property/casualty actuary can now remain within that single system to gain their credentials.

**An education approach that emphasizes practical application.** The SOA's unique e-Learning modules give candidates the ability to gain hands-on experience with tools and techniques they will encounter in a real-world environment, reflecting the SOA's emphasis on practical experience and thoughtful analysis. Some actuarial competencies and particularly some analytical techniques can only be adequately learned and tested through hands-on demonstration by a candidate of his or her ability to use the technique. For example, the SOA General Insurance track's *Applications of Statistical Techniques* module requires students to build a generalized linear model using data sets and comprehensive software, whereas some other approaches may only ask candidates about the use of these techniques in abstract examples. The former method – hands-on demonstration of competency – tests this knowledge appropriately. We believe the latter does not.

**An education system that includes business skills.** The SOA's Decision Making and Communication Module (DMAC) is an e-learning module that provides candidates with education on written and oral communication skills, as well as decision-making skills with respect to solving a business problem. DMAC candidates must complete a work-related project and present their results at the Fellowship Admissions Course, where they also receive further instruction in professionalism matters. Communication skills are also emphasized throughout the other e-Learning modules.