

Future FELLOWS



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CAS Releases White Paper on Education Strategy

By J. Michael Boa, CAS Director of Communications and Research

After years of research and discussion, the CAS Board of Directors has endorsed a proposed strategy for future CAS education, with significant implications for both basic education and continuing education. The board agreed during its meeting in September 2006 that it is critical to gather input from the stakeholders in the CAS education process before implementing the strategy.

The *White Paper on CAS Education Strategy* was developed to present the strategy to stakeholders and invite feedback. The paper includes the board's rationale for the proposed strategy and supporting background information. Impact on travel time was not a key consideration in the development of the strategy, but the Board is committed to considering improvements in aspects of CAS education, such as improved educational materials, that would increase the efficiency of the educational process.

Interested parties are encouraged to provide feedback on the proposed strategy, which will help shape the next phase of the discussions as the board continues its deliberations in 2007. A survey has been developed to help gather feedback.

After reviewing stakeholder input, if the board feels that the benefits outweigh the risks, then a detailed implementation plan and

timeline will be developed. However, if stakeholder feedback indicates additional risks or better alternatives, then a revised strategy will be developed.

Regardless what strategy is ultimately approved, it is expected that implementation will not occur for several years and that the implementation plan will include a transition strategy designed to minimize disruption for candidates.

ACAS Designation

Also during the September board meeting, the board agreed to table the discussion of discontinuing awarding the ACAS credential until after the CAS education strategy has been developed. The board has decisively stated that under no circumstances would the new strategy involve automatically awarding Fellowship to current Associates.

The *White Paper on CAS Education Strategy* and survey form can be accessed through a link on both the home page and the "Admissions/Exams" page of the CAS Web Site (www.casact.org). All feedback submitted before January 31, 2007 will be considered. Contact the CAS Office at office@casact.org to receive a hard copy of the White Paper or with any questions. **ff**

Exam 3 Waiver Approved

The CAS Board of Directors has approved a waiver policy that will grant credit for CAS Exam 3 to those who pass both parts of SOA Exam M, i.e., Exam M-Financial Economics and Exam M-Life Contingencies. The SOA will begin to offer its Exam M in two parts beginning in 2007.



Dates to Remember Dates to Remember Dates to Remember

Winter Exam Registration Deadline

December 21, 2006
Exam 1/P

Spring 2007 Exam Registration Deadlines

*There is only one deadline
for each set of exams. Late
registrations will not be accepted.*

March 15, 2007
Exams 3, 5, 7, and 8

March 22, 2007
Exam 1/P

April 2, 2007
Exams 2/FM and 4/C

Refund Deadline for Winter 2007

Exam 1/P
February 19, 2007 and
cancellation of appointment by
noon of the second business day
before test appointment

CAS Seminars and Meetings

Seminar on Ratemaking
March 8-9, 2007
Hyatt Regency Atlanta
Atlanta, Georgia

ERM Symposium
March 28-30, 2007
Chicago Marriott Downtown -
Magnificent Mile
Chicago, Illinois

**CARe Seminar on
Reinsurance**
May 7-8, 2007
Sheraton Society Hill Hotel
Philadelphia, Pennsylvania

CAS Spring Meeting
June 17-20, 2007
Disney's Contemporary Resort
Lake Buena Vista, Florida

Catastrophe Modeling—Challenges and Best Practices

By David A. Lalonde, FCAS, FCIA

Historically, catastrophe modeling has been used for reinsurance and portfolio management. However, it has now been adopted broadly across all phases of the insurance process. At one end of the spectrum, it is used to price transactions that cede catastrophe risk to the capital markets in the form of catastrophe bonds, sidecars, industry loss warranties, and other alternative risk transfer transactions.

At the other end, catastrophe modeling enhances primary insurance underwriting by supporting ratemaking, portfolio optimization, and exposure management decisions. The model does not replace the actuary, rather it is a tool that helps actuaries assess the risk and executives to fashion more informed risk management strategies.

To be effective business tools, however, models must be supplied with high-quality exposure data, and their results checked for reasonability and proper interpretation.

Data Quality is Key

Catastrophe models can provide highly detailed results on damage probabilities and estimated losses, but only if the exposure data used as input are of high quality and detail. In late 2005, as part of an intensive effort to discover why some companies' modeled losses for Katrina differed from actual losses, AIR Worldwide conducted an analysis of exposure data from companies representing more than half of the total U.S. property market. The study centered on four data elements critical to accurate catastrophe loss estimation—replacement value, construction, occupancy, and location.

The analysis revealed significant problems with data quality and completeness, especially for commercial properties. In particular, property replacement values—a model input with considerable impact on catastrophe loss estimates—were of questionable accuracy for approximately 90 percent of the companies analyzed. The data were also highly variable; insurers' average replacement values ranged from 20 to 80 percent of values derived using standard engineering-based cost estimation techniques.

Catastrophe models estimate loss by applying vulnerability functions to the replacement value before applying policy terms and conditions; thus, accurate replacement values are essential for obtaining accurate loss estimates. If a property's replacement value is understated by 50 percent, the estimated catastrophe loss will be understated by at least that much. Exacerbating this issue, much of the industry is using coverage limit as a proxy for replacement value. This practice will also tend to underestimate catastrophe risk, particularly for policies covering only a share of the property.

The analysis did highlight significant progress in the quality of location information for commercial policies, with a high percentage of commercial policies identified by street addresses. However, many multi-location policies contained only a single address (typically the headquarters or billing address), which is insufficient for accurate catastrophe loss analysis. The study also

found that construction type and occupancy class data were too often inadequate. Over 50 percent of companies analyzed lacked construction and/or occupancy information for more than one-third of their insured properties.

To ensure that their catastrophe models are able to provide accurate results, actuaries need to be prepared to challenge their data. Familiarize yourself with data format and content. Be sure to request data that is pertinent to your needs. Perform control data checks to see whether the data is complete, and review the data for reasonability. Confirm assumptions about coverage and deductible application. Focus on the accuracy of data elements such as location, construction, occupancy, or replacement value that can have dramatic impact on results.

Are Model Results Reasonable?

Over the past decade we have seen two concerning trends in the use of models for underwriting. First, largely because of the data quality issues discussed above, modeled losses based on detailed exposure data do not fully reflect actual growth in replacement values over the past decade. Second, as the volume of detailed data being analyzed has grown, catastrophe modeling has been functionally separated from underwriting at many companies. As a result, many actuaries, underwriters, and other decision makers no

longer perform reasonability checks on the model results—checks which could reveal and help mitigate the effects of poor quality exposure data.

Actuaries must also take into account a catastrophe model's limitations. Not all peril consequences are included in the standard catastrophe model. For example, how does hazardous waste cleanup factor into hurricane losses? Is demand surge accounted for? Challenging the results as you did the data will help ensure that your loss estimates reasonably reflect your true catastrophe risk.

Best Practices in Model Interpretation and Risk Assessment

To be useful, the results generated by catastrophe models must be translated into business practice properly. Below are a few guidelines for best practices in the application of catastrophe models to risk management.

- Think of loss exceedance probabilities, not return periods. Instead of thinking catastrophe modeling results in terms of return periods (e.g., 100-year return), think instead of exceedance probabilities (e.g., 1 percent annual probability). Placing losses in this context will help avoid the misleading notion that you cannot see two events with high return periods (such as a pair of 250-year storms) in your lifetime.

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Exam Tips

By Benjamin Clark, FCAS, Candidate Liaison Committee

After taking an exam, do you ever wonder if the CAS can provide hints to help improve your ability to pass exams? Well, I'm not here to give you any tips. This has been a fairly common topic in *Future Fellows*. Instead, I will direct you to the best place to look for answers.

There are a few excellent links on the CAS Web Site that can provide guidance about the exam process. For example, you can go to past issues of *Future Fellows* online and review five articles that provide suggestions about how to improve your studying methods and ability to pass exams. These articles are found in a great index on the CAS Web Site that has links to previously published *Future Fellows* articles. Please visit the following link—<http://www.casact.org/admissions/futfell/OnlineIndex.htm>—and find the five articles under the title "Tips."

While you are there, feel free to take a look at the articles about study tools, pass marks, career development, and anything else that may interest you. If you click on the Casualty Actuarial Society link at the bottom of the page, you'll be connected to the CAS Web Site homepage. I recommend that you take a look at the CAS Web Site beyond just the syllabus material. It is a great Web site that has recently been updated. I have frequented it for articles on various actuarial techniques that help me do my job better (to search for articles, see the DARE article search on the right-hand side of the page or click the Publications link). There is also a Frequently Asked Questions link under the "Admissions/Exams" section that can provide answers to many common questions and concerns.

If you still cannot find what you're looking for, you can submit questions directly to the Candidate Liaison Committee. We are here to provide a concise voice of the candidates in the admissions process. Please see the "Send Feedback to the CLC" link under the "Admissions/Exams" section on the CAS Web Site.

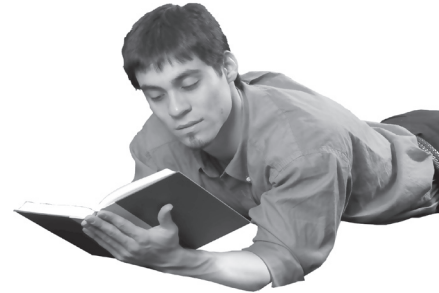
Okay, I'm going to go back on my word and actually provide you a tip or two on answering essay questions on the examinations. The CAS examination committees do stress that it is quite beneficial to have short, cohesive answers. Students do not need to put long sentences in all of their responses. In fact, sentences may not even be required. As long as your answer has the key points, the graders will give you credit for the response.

The following is an example of an acceptable short response. On the Fall 2004 version of Exam 9, Question 39 asked candidates to look at a table of losses to standard premium across various levels of experience mods for four types of experience rating plans. There were then two parts to this question: (a) what was the best performing plan and why; and (b) explain why each of the other three plans is inferior to the best performing plan. This was a three-point question.

The CAS published the following response as getting credit for this question:

- a) Plan C: This is a better plan because the loss ratio to standard premium is closer to unity. It better corrects for cost differences that it identifies and no identified trend in the std loss ratio.
- b) Plan A: Since std loss ratios are increasing when mod are increased, it means that plan is not enough responsive (lower mods required much lower mods and higher risks required higher mods).

→ turn to page 5



- Manage to an expected loss, not to an event. It is not the risk of individual events that needs to be managed, but rather the level of loss that will cause financial impairment. This could come from a single event, multiple losses within a year (like the 2004 hurricane season), aggregation of losses across perils, or multiple years of catastrophe experience. Companies should focus on the aggregation of risk across perils and over a planning horizon.

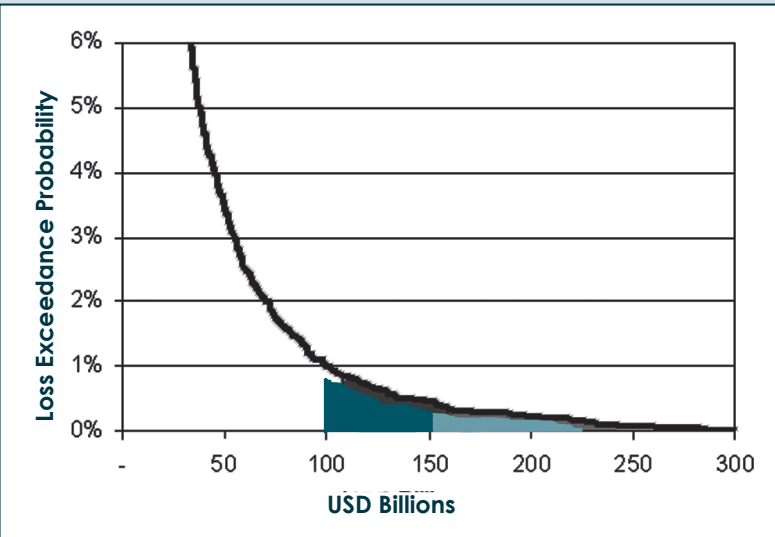
- Manage exposure portfolios using the full loss distribution. Companies must look beyond the single loss level or 1 percent loss estimate. In fact, insurers should know their tail-value-at-risk (TVAR), their modeled TVAR-to-surplus ratios for various loss probabilities, and the regions and perils driving their large loss scenarios.

These practices can help companies utilize catastrophe models to their fullest capabilities, but are not yet routine across the insurance industry. As the use of catastrophe modeling grows, proper training on model use and application is becoming a critically important component of ensuring that a) best practices are applied throughout the industry, and b) actuaries and other users have a better understanding of the science underlying the catastrophe models they work with.

Summary

Catastrophe models are essential tools for decision-making regarding risk selection, pricing, underwriting, risk transfer, loss mitigation and portfolio management. They provide answers as well as teach what questions to ask when looking strategically at a company's book of business. However, to fully realize the value they offer, the analysts running the models and the actuaries and underwriters making risk management decisions must thoroughly understand how the models work and how to interpret their output. Communication of model results to senior management must include disclosure of assumptions, adjustments, and range of uncertainty. **ff**

David Lalonde is senior vice president at AIR Worldwide Corporation, Burlington, Ontario. His article, "Catastrophe Modeling—An Overview," appeared in the September 2006 issue of Future Fellows.



There are many events in the AIR Hurricane Model with industry losses in excess of \$50 billion, \$100 billion, and even \$200 billion. Companies need to consider the impact of losses beyond the 0.4 percent exceedance probability.

Review of the New Reading Period on CAS exams

By Benjamin Clark, FCAS, Candidate Liaison Committee

This past year, the CAS introduced a short reading period prior to the actual exam. The reading period is intended to give additional time to read the exam questions and allow candidates to develop an exam-taking strategy. It would also help candidates who get stuck on certain questions and need to respond quickly to high-point-value questions.

After the Spring 2006 administration, the CAS asked for candidate feedback. Overall, the candidate population has been very positive about the new reading period. Of the near 800 candidates who responded to the examination survey after the Spring 2006 administration, 72 percent felt the reading period was helpful. A large majority also felt the length of the period was right, while 20 percent thought it was too long and 13 percent thought it was too short. Lastly, 73 percent of the respondents thought the reading period should be continued.

While we understand many candidates who are indifferent or who received little benefit from the reading period may have responded positively about the reading period, there were many strong comments towards continuing this process that reinforces what we feel are overall positive opinions. In fact, we got feedback from many candidates who initially had strong doubts about the reading period but came away very appreciative.

The most positive comments surrounded being more prepared and being more efficient during the actual exam writing period. It enabled many students to organize how they were going to take the exam. Even for students who don't like to strategize but want to dive right in, the reading period enabled them to pinpoint questions with high point values and thus answer them before running into a time crunch near the end of the exam writing period.

Candidates also commented that it eased their stress as it gave them confidence that they knew the material or it gave them an overall feel on what actually was being tested. Some students even came away with ideas on how to answer a few questions prior to actually writing the exam.

Candidates' biggest concerns relate to a preference to move the reading period into the actual exam time, not being able to write during the reading period, extending the writing period further into lunch time, extending an already long exam process, and providing benefit to other candidates which can drive up the overall pass mark.

The CAS has collected all of the feedback from students about the reading period and other issues. The Examination Committee does review these responses and keeps these concerns in mind when developing the exam process and finalizing the exam. The committee also plans to revisit the reading period after a few sittings.


In addition to reviewing the feedback, the CAS Examination Committee has been working to clarify exam instructions regarding the reading time—what can and cannot be done during the reading period. The following are suggested guidelines for the reading period.



During the reading period, candidates

1. should verify they have the necessary reference materials.
2. should check the exam booklet for missing or defective pages.
3. may review the reference materials.
4. may read as much of the exam as possible during the allotted time.
5. may identify pages by bending a corner of the exam booklet (i.e., dog-ear).
6. may remove the staple from the exam booklet and re-order the pages.
7. may reorder the answer sheets.
8. CANNOT use pens, pencils, or calculators.

If you do reorder the exam booklet, please ensure that you match the question with the correct answer number on either the short-answer card or the essay answer sheets.

It is important for candidates to understand that this new reading period was not intended to affect any of the other parts of the examination process. The number of questions are selected based only on the amount of examination time (i.e., exclusive of the reading period). The grading process will continue to be based on the candidate's ability to demonstrate their achievement of the required learning objectives. 

New Refund Policy Initiated

The CAS has implemented the following new refund policy.

For Exam 1/P, a candidate must both cancel the appointment by noon of the second business day before the appointment at the test center and submit a refund request to arrive by the deadline listed below.

For all other exams, the refund request must arrive by the deadline listed below. No late refund requests will be accepted.

Exam Sitting	Exams	Refund Deadline
Winter 2007	Exam 1/P	February 19, 2007
Spring 2007	Exam 1/P	May 13, 2007
	Exams 2/FM, 4/C	May 10, 2007
	Exams 3, 5, 7, 8	April 23, 2007
Summer 2007	Exam 1/P	August 20, 2007
Summer 2007	Exam 1/P	August 20, 2007
	VEE Transitional Exams	August 7, 2007
Fall 2007	Exam 1/P	November 25, 2007
	Exams 2/FM, 4/C	October 31, 2007
	Exams 3, 6, 9	October 29, 2007

Resources & Reminders

In the redesigned "Admissions/Exams" section of the CAS Web Site are:

- All updates to the Syllabus of Basic Education
- "Notice of Examinations"
- "Verify Candidate Exam Status" to verify that joint exams and VEE credits are properly recorded
- CAS Regional Affiliates have their own section on the CAS Web Site

If you have not received a confirmation of your registration for Exams 3, 5-9 two weeks prior to the registration deadline, please contact the CAS Office.

Remember your Candidate Number!

Exam Tips


From Page 3

Plan B: It is the inverse of Plan A, the plan is too responsive to cost differences it identifies.

Plan D: Again as for Plan A, we see an increasing trend in std loss ratios when mod is increased.

These responses are short and to the point. Even though the responses are sentences, the candidate could have shortened the response even more and only provided the relevant information in fragment form. Overall, the format is very simple to follow and the candidate has easily shown a grasp of this topic. The grammar may not be perfect, but the CAS is not grading your grammar.

I have one more recommended tip—writing clearly goes a long way in helping the graders ensure you get proper credit for your response.

By trying to relax and write shorter responses, you'll have more time to think about your responses and help ensure you get to all of the questions. You'll also feel less pressure and your writing can come out clearer. But, I do understand this is easier said than actually done. 

Candidate Liaison Committee Mission

The Candidate Liaison Committee communicates with CAS candidates, collectively and individually, who are taking CAS examinations. The committee informs candidates as to appropriate courses of action available to them. Through periodic communication, this committee informs candidates of results of examination administrations, actions taken on complaints received regarding examination questions, and reasons for syllabus and examination changes being implemented. Communication encompasses existing policies and procedures as well as changes being considered. The committee should advise the CAS and its committees of the interests of the candidates regarding matters that come before the CAS and its committees. Candidates may contact the Candidate Liaison Committee at the CAS Office address.



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Searching for Jobs made easy at the CAS Web Site


By Becky A. Yeager,
CAS Communications Coordinator

Searching for a job has never been easier! The new CAS Web site provides job-seekers at all levels—Fellows, Associates, candidates and college students—an easy-to-use job board that is chock full of actuarial and risk management job opportunities.

Launched in mid-June, the new Web site provides a fresh, professional, and modern appeal. Among the site's primary features are increased maneuverability and a prominent location for the job board, just a click away from the CAS home page.

At www.casact.org, click "Jobs" in the left-hand menu and you're on your way. On the Job Search page, click "Activate the Search" to see all of the open positions. But with an average of 40-50 openings posted at any one time, you may wish to customize your search to pinpoint the perfect position. Job seekers can customize their searches using available search options such as job title, location, salary range, keywords, and required qualifications, (e.g., CAS candidate, Associate, or Fellow).

In addition to open positions, the "Jobs" section of the Web site allows individuals to post their resumes in the "Job Wanted" section. Commercial advertisements are also included in this area of the Web site. All your questions about the "Jobs" section can be found in the new Job Posting FAQs.

Whether your job search is just beginning, or you are looking to make a change in your career, the "Jobs" section on the CAS Web site has something for everyone. The job board includes opportunities that are available for both those entering the profession and for experienced professionals. We invite you to visit often, as new open positions are posted weekly. 

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For information, please contact the CAS Office. Send all letters to the editor to the CAS Office address.

Postmaster: Please send all address changes to: The Casualty Actuarial Society, 4350 North Fairfax Drive, Suite 250, Arlington, Virginia 22203.

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Vendor Links

The CAS provides vendor information on review seminars and study aids as a service to its candidates. The CAS takes no responsibility for the accuracy or quality of the seminars and study aids announced in *Future Fellows*.

Actex Publications/Mad River Books:

<http://www.actexamdriver.com/>

Exams 1, 2, 3, 4, 5, 7, 8

The Actuarial Bookstore:

www.actuarialbookstore.com

Exams 1, 2, 3, 4, 5, 7, 8

All 10, Inc.:

<http://www.all10.com/>

Exams 5, 7, 8

A.S.M.:

<http://www.studymanuals.com/>

Exams 1, 2, 3, 4

Austin Actuarial Seminars:

www.actuarialseminars.com

Exams 3, 4

BPP Professional Education:

<http://www.bpp.com/>

Exams 1, 2, 4, VEE-Economics,
VEE-Corporate Finance

CAMAR Actuarial Review Seminars:

<http://sbm.temple.edu/>

actsci-seminars/

Exams 1, 2, 4, 5, 7

Casualty Study Manuals: <http://www.csmanuals.com>

Exams 1, 2, 3, 4, 5, 7, 8

G.V. Ramanathan Actuarial

Exam Preparation Courses:

<http://www.actuarialexamprep.us/>

Exam 1

Illinois State University Actuarial

Program: [http://www.math.ilstu.edu/](http://www.math.ilstu.edu/actuary/prepcourses.html)

actuary/prepcourses.html

Exams 1, 2

Midwestern Actuarial Forum:

<http://www.casact.org/affiliates/maf/>

Exam 3

New England Actuarial Seminars:

<http://www.neas-seminars.com/Misc/>

Exams 2, 3, 4, 5, 7, 8

Slide Rule Books

www.sliderulebooks.com

Exams 1, 2, 3, 4, 5, 7, 8

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