

New CAS Exams: Modern Actuarial Statistics I and II Frequently Asked Questions

The CAS has announced that it will create a new exam and modify a current exam, and brand these exams as Modern Actuarial Statistics I and II (MAS-I and MAS-II).

- MAS-I will be nearly equivalent to current CAS Exam S and will first be offered in the spring of 2018.
- MAS-II will cover much of the current SOA Exam C, which is being discontinued in 2018. The new exam will add statistics and predictive analytics material, and will first be offered in the fall of 2018.

This FAQ is intended to answer questions that our constituents may have about the changes to the CAS basic education requirements. If you have additional questions, please contact the Actuaries' Resource Center at the CAS Office at ARC@casact.org.

1. Q: **Reason for New Exams: Why has CAS decided to offer two new exams, MAS-I & MAS-II?**

A: There is no greater duty the CAS has to the profession than to help ensure that future actuaries are prepared to meet emerging challenges and changing circumstances. That is the primary reason the CAS is revising its basic education requirements by offering these new exams: to help ensure that actuaries are better prepared for the future.

There are also practical reasons for offering the two new exams. The Society of Actuaries has announced that it will discontinue offering Exam C, which most CAS candidates complete to fulfill CAS basic education requirements. The discontinuation of Exam C provides an opportunity to create a replacement exam that focuses on the modern statistics that actuaries are now using. This will increase the relevance of the CAS exam syllabus with respect to emerging statistical and analytics skills, with minimal changes to the overall exam structure.

2. Q: **Timing: When will these two new exams first be offered?**

A: MAS-I will first be offered in spring 2018. MAS-II will begin in fall 2018.

3. Q: **Exam Administration: How will the new exams be administered?**

A: Initially, these exams will be offered on a multiple-choice pencil-and-paper basis. Because they are new exams, we will not yet have a large question bank from which to randomly select questions for computer-based testing (CBT) purposes. The format may change to CBT as the exams mature and a bank of questions can be developed.

4. Q: **Exam Format: What will be the format and number of questions on the exams?**

A: MAS-I and MAS-II will be four-hour, multiple choice exams. The number of questions on each exam has not been finalized and may change slightly from one examination

sitting to the next. A general rule of thumb on multiple-choice actuarial exams is to expect about 10 questions per hour of testing. Thus, candidates can expect 35-40 questions for these four-hour exams. There will be a guessing adjustment, so it is not to the candidate's benefit to guess at answers. These details will be further clarified on the CAS website as the first exam date gets closer.

5. Q: **Exam Frequency: How often will these exams be offered?**

A: MAS-I and MAS-II initially will be offered every six months (twice per year), in the same general windows in the spring and fall in which other CAS exams are offered. We believe that two offerings per year is frequent enough to result in no significant change in travel time to the ACAS credential.

6. Q: **MAS-I and II Syllabus Topics: What are the broad topics covered on the syllabi for the two new exams?**

A: MAS-I will cover the following topics:

- Probability Models (Stochastic Processes and Survival Models)
- Statistics
- Extended Linear Models
- Time Series with Constant Variance

MAS-II will cover the following topics:

- Introduction to Credibility
- Linear Mixed Models
- Bayesian Analysis and Markov Chain Monte Carlo
- Statistical Learning

The complete syllabi for the exams is expected to be posted on the CAS website in early 2017.

7. Q: **MAS-I versus Exam S: How will MAS-I differ from the current Exam S?**

A: Candidates should expect MAS-I to look similar to Exam S, but with more emphasis on applied modeling and deeper coverage of generalized linear models.

8. Q: **MAS-II versus Exam 4/C: How will MAS-II differ from the current Exam C? What will happen to the subject matter currently on the Exam C syllabus?**

A: MAS-II will include topics from Exam C that are considered critical for casualty actuarial practice (e.g., credibility theory), and will also include advanced statistics topics like Bayesian Markov Chain Monte Carlo (MCMC) methods.

Overall, the topics currently on Exam C are going to several different destinations, and in some cases disappearing completely. The principle topic from Exam C that will be tested on MAS-II is credibility (although not all subsections of credibility are being retained).

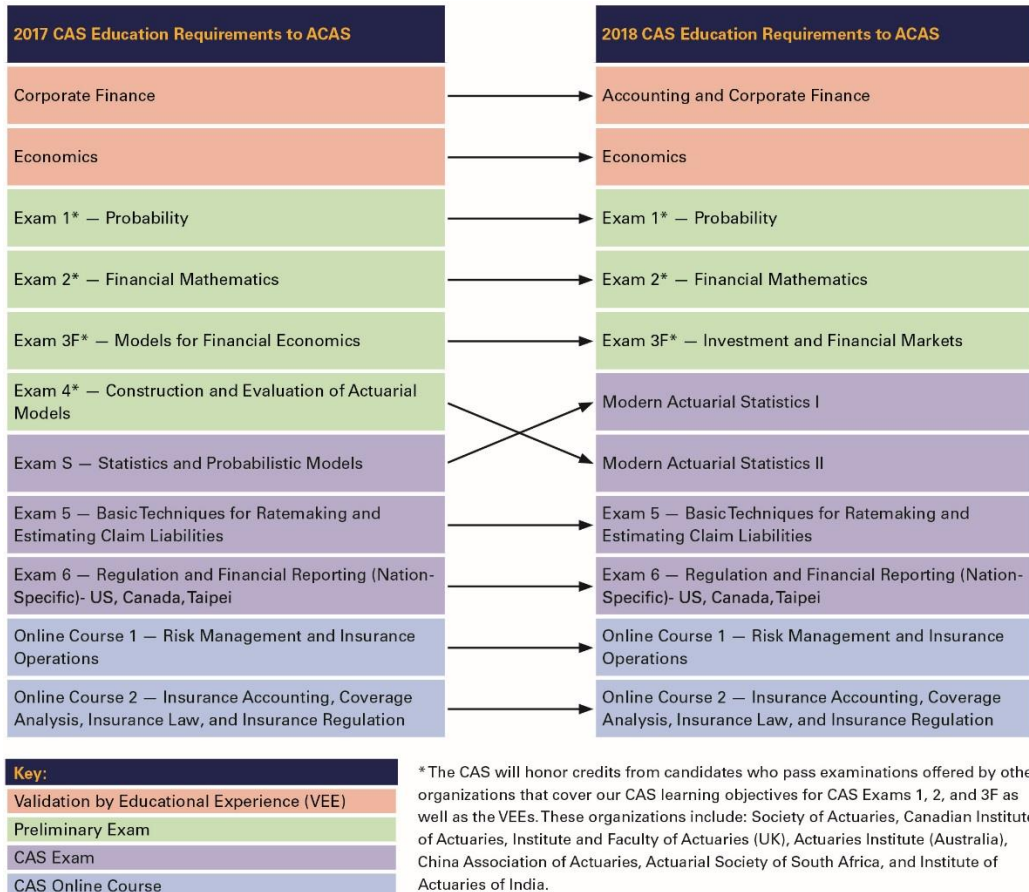
Portions of the collective risk model topic on Exam C appear on MAS-I (and a few other portions may ultimately be destined for Exam P). The simulation topic has limited coverage on MAS-I. The transforming distributions topic is going on MAS-I under “Statistics.” There is some overlap between Exam S and Exam C, and there are also some topics covered on Exam C that are not relevant to property-casualty actuaries; these topics are being dropped.

9. Q: **MAS-II and Credibility:** How much of the current Exam C credibility material is on MAS-II?

A: MAS-II covers classical or partial credibility as well as least squares and Bayesian credibility weighting that candidates see on today’s Exam C syllabus, but the relative weight for questions is being reduced.

10. Q: **Transition Rules:** What are the transition rules for MAS-I and MAS-II, relative to the exams they are replacing, Exams S and C?

A: The transition rules are simple: any candidate with credit for Exam S achieved through an examination administered prior to January 1, 2018 will receive credit for MAS-I, and anyone with credit for Exam C achieved through an examination administered prior to July 1, 2018 will receive credit for MAS-II.



11. Q: **Waivers and Credit: Are there waivers or credits for the CAS's new credentialing requirements that are being contemplated?**

A: The current waiver structure remains in place for 2017, but will change when the CAS's new exams are introduced in 2018. The CAS is currently reviewing waiver options for the 2018 education system, with a goal of maintaining a similar waiver structure as is currently in place. Details on exam waivers and credits will be announced on the CAS website.

12. Q: **Exam Order: Is passing MAS-I a prerequisite for taking MAS-II?**

A: Passing MAS-I is not a formal prerequisite for taking MAS-II, but MAS-II will presume that the candidate has mastered the material on MAS-I.

For those who have already passed Exam S, mastering the concepts of Exam S generally should be sufficient preparation for taking MAS-II. The sections of the Exam S syllabus correspond with the sections of MAS-I, but MAS I has increased focus and weighting on GLMs, which is the main area underpinning the Linear Mixed Model sections of MAS-II.

13. Q: **Sample Exams: Will sample exam questions be available for MAS-I & MAS-II prior to their first offerings?**

A: Yes, sample questions and answers for the two new exams will be published well in advance of their first offerings. Also, by reading the examples and working the problems in the recommended textbooks, candidates will have a fair idea of the type of questions that will be asked.

14. Q: **Textbooks and Readings: What types of, and how many, readings will be required for MAS-I & MAS-II? What will be the costs associated with these readings?**

A: These details will be further clarified on the CAS website as the first exam date gets closer.

15. Q: **Effect on Current Academics: How will these changes affect academics? Will university course curriculums need to change?**

A: There is fair chance that colleges already will have course work that covers MAS-I through the second course of a typical two-semester-course sequence in probability and statistics. It's less likely that colleges will have course work covering the topics on MAS-II.

The CAS University Engagement Committee is working on an outreach plan to the academic community to share additional details on the transition and help prepare academics for the changes.

16. Q: ***Effect on Current University Students:*** How will these changes affect university students? Will students now need to make a decision about what type of actuary to become, and which set of actuarial exams to take, before they graduate?

A: The CAS will continue to accept SOA Exams P, FM, and MFE (to be renamed IFM in 2018) for CAS preliminary exam requirements. While the CAS will accept one fewer SOA exam credit (after Exam C is terminated), the vast majority of candidates will already be employed and on the CAS or SOA exam track at the point that candidates would be sitting for their fourth exam. Only about one in ten CAS candidates sat for Exam C prior to graduating from college. Those students passing four or five exams before graduation are likely to already have internships that often lead to permanent positions, so they generally know sooner than most students which type of actuarial career they wish to pursue.