

Actuarial Mathematics (Actuarial Science) 2017 Addendum to the CUPM Report

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Background

In the summer of 2016, the Society of Actuaries (SOA) announced sweeping changes to the ASA (Associate of the Society of Actuaries) Curriculum. As we write this January 2017 addendum to the 2014 CUPM report, many of the curriculum changes are still being finalized and some new course syllabi are not yet available. The goal of this addendum is to help university programs anticipate changes they may need to make in actuarial course offerings and in actuarial degree requirements. This report will not offer complete details of the changes; actuarial program directors must focus closely on communications from both the SOA and Casualty Actuarial Society (CAS) as further details of changes continue to be made known.

Three sections of the original CUPM report require significant updates. The main portion of this addendum will focus on actuarial exam changes and changes to the VEE (Validation by Educational Experience) system. We will also mention additional tips for faculty resources and online student resources that were not included in the 2014 report.

While the information provided here is believed to be accurate at the time of its writing, the only source for current information is the websites of the respective societies.

Actuarial exams and credentials: 2017 Update

CAS/SOA exams

Each organization has its own series of examinations and other credentialing procedures leading first to the credential of Associate of that society and then to the credential of Fellow of that society. For details, for the SOA see <http://www.soa.org/Education/Exam-Req/default.aspx> and see <http://www.casact.org/admissions/process/> for the CAS. While several of the initial examinations currently satisfy requirements for both organizations, the pathways to Associate in the two organizations will soon start to further diverge. Most employers will expect a student to have passed one or two of the actuarial exams prior to graduation. It would be wise for students to first focus on exams that apply to either society.

In addition to the website listed above for the SOA, it is very important to note that the SOA will be introducing changes to the ASA pathway in each of the years of 2017, 2018, and 2019. A delineation of these changes together with transition rules can be found at <https://www.soa.org/Education/Exam->

[Req/2016-exam-fm-mfe-summer-change.aspx](#) for 2017 and <https://www.soa.org/curriculum-changes/curriculum-changes-default/> for 2018 and 2019.

In this 2017 addendum to the original 2014 CUPM report we will briefly summarize the upcoming changes to the ASA credentials.

SOA EXAM Changes in the ASA Track

Changes for CAS Exam 2/SOA Exam FM

The new version of the SOA Exam FM will first be offered in June of 2017. The syllabus will no longer include derivative securities. The new version of the exam will treat determination of interest rates and interest rate swaps in addition to the traditional coverage of calculus-based interest theory. The SOA will continue to administer this computer-based exam as SOA Exam FM. Currently the CAS does not administer a separate CAS Exam 2, but instead gives credit for its Exam 2 to anyone passing SOA Exam FM.

Changes for CAS Exam 3F/SOA Exam MFE

The introductory material on derivative markets tested in previous years on SOA Exam FM will now be treated on SOA Exam MFE. This change will occur with the July 2017 administration. The exam will continue to cover models for financial economics, as in the previous versions. However, several topics on stochastic calculus that appeared near the end of the past MFE syllabus have now been removed. The SOA will continue to administer this computer-based exam as SOA Exam MFE. Currently the CAS does not administer a separate CAS Exam 3F but instead gives credit for its Exam 3F to anyone passing SOA Exam MFE.

The following changes will occur in the first administration after July 1, 2018.

Changes for SOA Exam MLC The new version of this exam will now be called the Long-Term Actuarial Mathematics Exam. A few topics, including yield curves and diversifiable risk, have been removed from the previous MLC exam syllabus. On the other hand, certain estimation topics currently on Exam C have been moved to the new Long-Term Actuarial Mathematics Exam. The SOA will continue to administer this exam as a combination of multiple choice and written response questions.

Changes for SOA Exam C The new version of this exam will now be called the Short-Term Actuarial Mathematics Exam. This exam is markedly different from the former Exam C. Basic material on estimation has been moved to the Mathematical Statistics VEE. Material on the life table estimation will now appear on the Long-Term Actuarial Mathematics Exam. Topics on the Short-Term Actuarial Mathematics Exam will focus more on products in short-term insurance such as health, property, and liability insurance. Notions of pricing and reserving will also be tested on this exam. The SOA will continue to administer this exam as a computer-based exam.

New SOA Exam SRM (Statistics for Risk Modeling) The new SOA SRM Exam will formally treat topics previously treated in the VEE for Applied Statistics along with some new topics. Regression, time series, and the generalized linear model comprise core concepts in the exam syllabus. Exam SRM will be offered as a computer-based exam and will be a formal prerequisite for the SOA Predictive Analytics Exam.

New SOA Predictive Analytics Exam The rise of the use of data analytics in actuarial practice and the quantitative business world at large has led the SOA to add a Predictive Analytics Exam to the ASA track. The final syllabus of the exam is still in the planning stages. However, the basic two-fold format of the exam has been described as consisting of an e-Learning module coupled with a computer software assessment and written report.

Validation by Educational Experience (VEE): Changes in 2018 and 2019

Both the CAS and the SOA require knowledge of certain subjects on which they do not offer exams; instead, they are subject to Validation by Educational Experience (VEE) (<http://www.soa.org/education/exam-req/edu-vee.aspx>). The three subjects for which students obtain VEE credit in 2017 are Economics, Corporate Finance, and Applied Statistics. The VEE credits for Applied Statistics will be replaced by new VEE credits in Mathematical Statistics together with Exam SRM (Statistics for Risk Modeling) in 2018. (Note that the CAS does not require the current Applied Statistics VEE in the ACAS Track.) The VEE credit for Corporate Finance will be expanded to a VEE requirement for Finance and Accounting as of 2019. University programs should examine degree plans and determine if accounting courses need to be added to actuarial offerings. Many universities may already require a suitable accounting course as a prerequisite for their corporate finance course. Actuarial Directors also need to watch for announcements delineating VEE criteria for the new courses and apply to the SOA for VEE approval when new course approval forms are available.

The SOA has provided detailed information on the VEE changes (<https://www.soa.org/curriculum-changes/curriculum-changes-default/>). See the VEE pages of SOA website for information on how to get a course approved for VEE credit (<http://www.soa.org/education/exam-req/course-info/edu-vee-evaluation-process.aspx>) and for the list of all currently approved methods of obtaining VEE credit (<https://www.soa.org/Education/Exam-Req/Instructions-for-VEE-Directory.aspx>).

Faculty Training and Resources

To update the information listed in the 2014 CUPM report, we mention two new options available for actuarial faculty members.

CAS Academic Central: <http://www.casact.org/AcademicCentral> The CAS Academic Central program is free for non-CAS-members who are involved in teaching actuarial science, mathematics, economics, business, or related courses, and who have an interest in the activities of the Casualty Actuarial Society. Faculty gain access to numerous benefits, including curriculum guides, case studies, and other course-related materials.

The Society of Actuaries offers faculty support services through its [UCAP](#) (Universities and Colleges with Actuarial Programs) membership and [Centers of Actuarial Excellence](#) program. In addition the SOA launched an online [SOA Faculty Community](#) in 2016 and will offer their [Actuarial Teaching Conference \(ATC\)](#) this year on June 26-27, 2017 in Pittsburgh, PA. The ATC offers a chance for actuarial educators to learn and share actuarial teaching ideas, network with other faculty and hear about SOA current events.

Online Student Communities

To supplement the information listed in the 2014 CUPM report on Career-information resources, we would like to share three additional useful links that allow students to join actuarial communities.

CAS Student Central: <http://www.casstudentcentral.org/> CAS Student Central offers students free membership and access to study materials, online webinars and opportunities for networking. Students can also learn about scholarship opportunities and careers in the property and casualty field.

SOA Candidate Connect: <https://www.soa.org/News-and-Publications/Publications/E-News/soa-candidate-connect/soa-candidate-connect.aspx> The SOA's Candidate Connect services include a free online newsletter that contains job tips, exam change information, and news about the profession and upcoming conferences. Candidate Connect also provides an online forum for candidates, actuarial science students and all aspiring actuaries to interact with SOA members, staff, employers and other actuarial candidates.

International Association of Black Actuaries: <http://www.blackactuaries.org/> Student members of the IABA have opportunities for networking and being mentored by more senior members of the association. Scholarships are available for strong high school and college students seeking to start their actuarial careers.