University Program Resource

A GUIDE FOR UNIVERSITY ACTUARIAL PROGRAMS

SOCIETY OF ACTUARIES®

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SOCIETY OF ACTUARIES®

Contents

The Society of Actuaries (SOA) supports university actuarial programs and continues to build and strengthen the relationship between academia and the actuarial profession.

We've included four principles that we believe are critical to a quality actuarial program and some recommendations for enhancing those areas at your university. We've provided an overview of the Universities and Colleges with Actuarial Programs (UCAP) listing and the Centers of Actuarial Excellence (CAE) program for those interested in pursuing that goal. You'll also find a list of academic benefits for universities, faculty members and students.

Still have questions? At the end of this guide we've included a list of SOA staff members' names and contact information to help answer some of the questions you may have.

Let us know what you think

Please send any thoughts and suggestions for improving the guide to ***UniversityPrograms@soa.org*.** We'd also appreciate hearing about other ways the SOA may be able to support your efforts to build/strengthen your university actuarial program.

Who Can Benefit From This Guide?

Every university/college is different with its own unique goals and aspirations. This guide is designed to assist faculty at university actuarial programs who seek to provide high-quality, robust actuarial education for their students.

This guide is designed for those regularly offering courses covering SOA **Exam P (Probability)** and **Exam FM (Financial Mathematics)**, and possibly one or more of the following actuarial preliminary exams, as well as some or all **VEE (Validation by Educational Experience)** topics:

- Fundamentals of Actuarial Mathematics (FAM)
- Advanced Long-Term Actuarial Mathematics (ALTAM)
- Advanced Short-Term Actuarial Mathematics (ASTAM)
- Statistics for Risk Modeling (SRM)
- Predictive Analytics (PA)

If your university or college does not currently maintain this exam coverage, you may still find the ideas and suggestions in this guide helpful in beginning or developing an actuarial program.

While some of the recommendations provided here may not be feasible for all schools, the information in this guide can aid faculty members and administrators as they work to develop actuarial programs and/or move them to the next level.

Four Principles of a Quality Actuarial Program

University Actuarial Programs

PRINCIPLE I

Well-Rounded Curriculum

PRINCIPLE II

Robust Coverage of Actuarial Topics

PRINCIPLE III

Understanding the Actuarial Profession

PRINCIPLE IV

Research that Expands Actuarial Intellectual Capital

PRINCIPLE I: WELL-ROUNDED CURRICULUM

The program should include courses, interactions and opportunities that provide a well-rounded education for its students. In addition to coursework in mathematics, statistics and actuarial topics, students should have access to business, economics, finance and accounting courses, as well as courses in communication.

PRINCIPLE II: ROBUST COVERAGE OF ACTUARIAL TOPICS

Instruction on actuarial topics should go beyond teaching solely to the actuarial exams.While preparing students adequately for the exams is critical, providing a thorough understanding of the underlying concepts tested on the exams and methods of applying these concepts are equally important in building capable actuaries.

PRINCIPLE III: UNDERSTANDING THE ACTUARIAL PROFESSION

Many students who may be well-suited for a career as an actuary do not learn of the profession until they have already started at university or later. As the profession is not well-known to the general public, it is important that steps are taken to ensure students gain a thorough understanding of the various roles actuaries can play. Actuarial faculty members who are credentialed actuaries and the involvement of local industry professionals help to prepare students and build a strong understanding of the actuarial profession.

PRINCIPLE IV: RESEARCH THAT EXPANDS ACTUARIAL INTELLECTUAL CAPITAL

Research and scholarship are essential in the academic environment. This can include academic research, interpretation of research and the development of educational materials. Faculty should be encouraged not only to continue to learn and expand their knowledge, but to create new intellectual capital in the actuarial field.

Is Your University or College on the UCAP List?

The UCAP list (Universities and Colleges with Actuarial Programs) on the SOA website at **soa.org/UCAP-List** serves as a resource for students looking for a university/college actuarial program. To be approved for the UCAP list, a university must maintain course coverage for at least two actuarial exams and have approved courses for at least one VEE topic. The SOA defines a quality actuarial program as one that meets the needs of students, the actuarial profession and employers of actuaries. To accomplish this, we endorse four key principles of a quality actuarial program and encourage faculty and administrators to keep these principles in mind as they seek to enhance their programs.

"Much is being done at these universities beyond teaching to the exams."

Recommendations for Putting the Four Principles to Use in Your Program

Principle I: Well-Rounded Curriculum

The program should include courses, interactions and opportunities that provide well-rounded education for its students. In addition to coursework in mathematics, statistics and actuarial topics, students should have access to business, finance and accounting courses, as well as courses in business communication.

Thorough course coverage of at least two of the preliminary actuarial exams is key to providing students with the foundation and skills needed for actuarial employment. If you are building this coursework, we recommend starting with coverage for Exam P and Exam FM and then adding coursework for Exam FAM or Exam ALTAM, Exam ASTAM, Exam SRM, followed by Exam PA.

- For more details on the syllabus and learning objectives for these exams, please review the preliminary exam syllabus information on the SOA website. The content of these exams provides a solid foundation for an actuarial education. Students who pass one or more actuarial exams will have a greater degree of success in finding actuarial employment.

Helping students prepare for actuarial exams is critical. Here are some suggestions:

- Encourage students to put in extra time beyond your coursework to build the confidence and speed needed to be successful on the preliminary exams. In addition to understanding the underlying

principles, they need to quickly interpret and solve exam-type problems.

- Make students aware of the **sample exam questions and solutions** available on the SOA website. The SOA offers online sample exams free of charge for Exam P and Exam FM. Students should practice answering the sample questions to increase their speed.
- Encourage students to plan exam study sessions prior to each exam session. This works best if the actuarial student club arranges the sessions and they are led by upperclassmen or faculty members. These sessions are for students who have already taken the designated course(s) for the exam and need to practice answering and understanding sample questions.
- Purchase, or ask local employers to purchase, SOA exam study materials and third-party study manuals to be shared by students studying for the exams. A designated study area where the materials can be kept or checked out is helpful.
- Ask employers to sponsor a fund that offers exam fee reimbursement for your students who are successful on an exam.
- Consider when students take exam-related courses during the actuarial curriculum. If these courses can be taken earlier within the four-year plan, students may have more opportunities to take and pass exams while still at university.

It is important that a university education also provide supporting coursework that will meet the SOA's VEE requirement. This requirement asks actuarial candidates to demonstrate that they have had sufficient coursework in three areas not tested on the actuarial exams:

Economics (micro and macro)

Accounting and Finance

Mathematical Statistics

Students in an actuarial program should complete VEE coursework while at university. The **VEE Directory** contains a list of SOA-approved VEE courses for well over a thousand universities. If your university does not have SOA-approved VEE courses for the three topics on the approved list, it may have existing courses that cover the VEE topics that can be submitted for approval. To seek approval for courses that may meet the VEE guidelines, go to the VEE home page at **soa.org/VEE** and review the information under the heading "Requesting VEE Course/Option Evaluation." There is no charge to apply to have courses approved.

Principle II: Robust Coverage of Actuarial Topics

Instruction on actuarial topics should go beyond teaching solely to the actuarial exams. While preparing students adequately for the exams is critical, providing a thorough understanding of the underlying concepts tested on the exams and methods of applying these concepts are equally important in building capable actuaries.

Whenever possible, the coursework covering the exams should be presented directly and instruction should include examples of how the material is applied. If faculty members do not have practical actuarial work experience, connections can be made with local practitioners who might be willing to teach or co-teach a topic to bring applied aspects into focus for students.

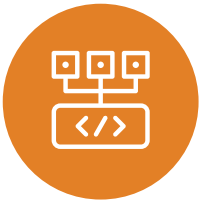
The profession considers business and communication skills a vital part of an actuarial education. In addition to the required VEE coursework, students should be encouraged to take as many of the following types of courses as possible:

Investments

Risk and insurance (including insurance coverages and company operations)

Strategy

Leadership



Management and organizational behavior

Business communication (written)

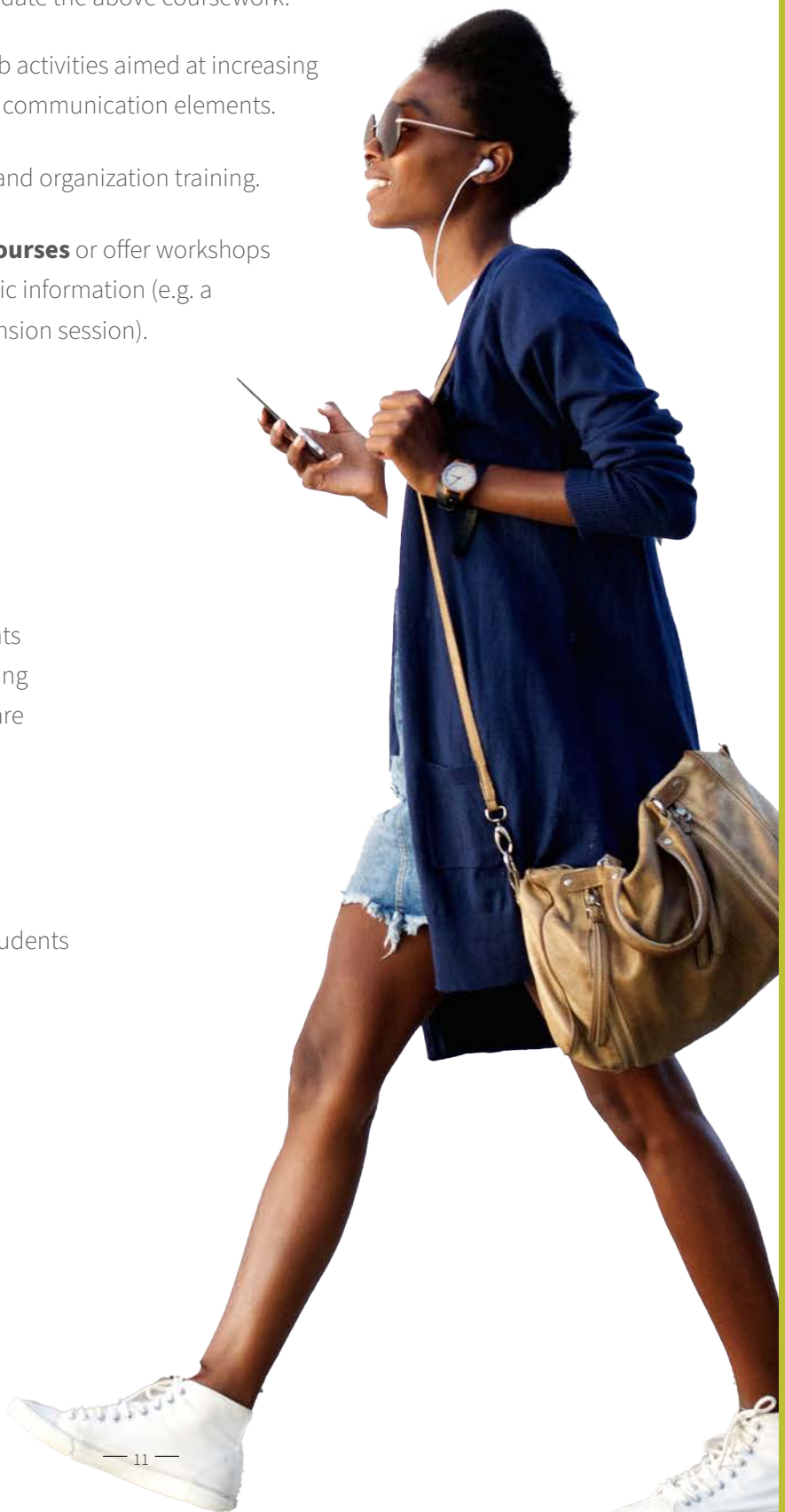
Oral communication

Negotiation

Tips for Building Communication Skills

Here are some tips for building communication skills if courses are not available or schedules will not accommodate the above coursework:

- **Invite external speakers** or plan club activities aimed at increasing students' knowledge on business and communication elements.
- **Actuarial clubs** can offer leadership and organization training.
- Call upon **local actuaries to teach courses** or offer workshops on programing or practice-area-specific information (e.g. a life or health insurance course or a pension session).
- Encourage students to participate in **Toastmasters International** or other organizations that provide speaking opportunities.
- **Schedule weekly or monthly presentation sessions** where students present projects they have been working on in their courses and faculty can share their research or recent activities.
- **Invite employers** to share work experiences.
- **Create a rewards program** where students earn points when participating in the above or other preparatory activities.



Principle III: Understanding the Actuarial Profession

Many students who may be well-suited for a career as an actuary do not learn of the profession until they have already started at university or later. As the profession is not well-known to the general public, it is important that steps are taken to ensure students gain a thorough understanding of the various roles actuaries can play. Actuarial faculty members who are credentialed actuaries and the involvement of local industry professionals help to prepare students and build a strong understanding of the actuarial profession.

It is helpful to have credentialed actuaries on your faculty. Full-time credentialed faculty is ideal if possible, but actuaries in adjunct or part-time roles can also be a benefit to your program.

Actuaries

- Fully understand the path to becoming an actuary and the combination of skills required to be successful in the field;
- Are not only capable of the technical elements of actuarial work, but are able to move students toward actuarial applications of that knowledge; and
- Are better positioned to develop valuable industry connections for students.

Connecting with local actuaries and employers can enhance your program

Here are some suggestions:

- **Establish a student actuarial club.**
  - Encourage students to organize and run the club (builds leadership skills).
  - The club can plan events such as study sessions, employer presentations, recruiting events, social activities, mock interviews, speed networking, résumé assistance classes and case study competitions.

- **Establish an actuarial advisory board.**
  - Invite a select group of actuaries and alumni to participate on the board.
  - Seek their advice on curriculum enhancements and current employer needs.
  - Meet at least once per year or more often if projects are undertaken or specific needs arise.
  - Invite them regularly to actuarial club events to help build and solidify the relationship.

- **Plan an annual actuarial career fair (student club can assist with this as well).**
  - Invite local/regional employers.
  - Begin as part of university career fair if numbers are small.
  - Combine the career fair with a club social activity for additional networking opportunities.

- **Reach out to your local actuarial club to see what student programs it may have and encourage students to attend its meetings.** You can find clubs by using the **SOA Explorer tool.**

- **Encourage internships.** Summer and academic-year internships are increasingly important to students' education and their ability to secure a position with an actuarial employer after graduation.
  - Find out when regional employers recruit for internships and encourage your students to apply.
  - Reach out to employers to enhance your relationship with them and invite them on campus regularly for speaking and recruiting events where they can interact with your students.

- **Develop student research programs.** They are an excellent way to involve students in real-world cases and situations.

- **Include teamwork, case studies, group projects and presentations in your actuarial curriculum.**
  - These activities help to build the business skills students need and give them a better sense of their future careers.
  - Invite local actuaries to participate in these classes, especially with regard to case studies and projects where their practical expertise can be of value.

Principle IV: Research that Expands Actuarial Intellectual Capital

Research and scholarship are essential in the academic environment. This can include academic research, interpretation of research and the development of educational materials. Faculty should be encouraged not only to continue to learn and expand their knowledge, but to create new intellectual capital in the actuarial field.

The actuarial profession recognizes the need to encourage research and scholarship that can be of use to practicing actuaries.

Encourage actuarial faculty members

- **Attend the SOA's Actuarial Teaching Conference.**
  - Network with fellow academics.
  - Participate in the sharing of teaching methods across universities.
  - Get fresh ideas to help build/enhance your actuarial program and increase student involvement.

- **Attend the annual Actuarial Research Conference (ARC).**
  - Present research.
  - Network with fellow academics.
  - Learn about current research developments and trends.

- **Publish actuarial-related research** in peer-reviewed journals and other professional publications.

- **Join the SOA's Education and Research (E&R) Section**.
  - The section promotes ties between business actuaries, academic actuaries and actuarial educators, and seeks ways to support and encourage actuarial education and research.
  - Join the **E&R Section listserv**.
- **Participate in professional actuarial organizations**.
  - Attend/speak at professional actuarial meetings.
  - Serve on committees of professional actuarial organizations.
  - SOA Volunteering: **soa.org/VolunteerOpportunities**.
- **Join the SOA's Faculty Community**.
  - **soa.org/SOA-FacultyCommunity**.
  - Online networking forum for university faculty members involved in actuarial teaching.
- **Join the SOA's Academic listserv**.
  - Post your hiring announcements.

"Research and scholarship are essential in the academic environment."

SOA Offers Benefits to Academics

The SOA provides benefits to actuarial faculty members through the following initiatives (specific eligibility rules apply):

Reimbursement of travel expenses for participation as a speaker at an approved SOA meeting

Academic exam fee reimbursements for certain exams

Partial waiver (discount) of SOA meeting fees

SOA Hickman Scholars program

SOA Explorer tool visibility to promote university

Free Job Center postings for actuarial faculty positions

SOA Engage Faculty Community

Learn more about the academic benefits/initiatives at **soa.org/AcademicBenefits**

Universities and Colleges with Actuarial Programs (UCAP)

The SOA listing of **Universities and Colleges with Actuarial Programs (UCAP)** serves as a resource for students looking for a university/college actuarial program. The information provided for the schools on the UCAP list has undergone some review by the SOA, but should be verified by the student considering the program.

The UCAP list includes the universities and colleges that have met eligibility requirements at the following three levels of recognition:

- **UCAP–Introductory Curriculum (UCAP-IC)**: Must maintain course coverage for at least two SOA preliminary exams and have approved courses for at least one VEE topic area.
- **UCAP–Advanced Curriculum (UCAP-AC)**: Must maintain course coverage of at least four SOA preliminary exams and approved courses for all three VEE topics. The four exams must include either Exam ALTAM or Exam ASTAM.
- **Centers of Actuarial Excellence (CAE)**: CAE have attained the highest level of recognition the SOA offers universities. They must maintain eight specific requirements related to degree, curriculum, graduate count, faculty composition, graduate quality, appropriate academic integration, connection to industry, and research/scholarship. (See next section for more CAE details.)

Benefits for All CAE and UCAP-AC per Academic Year

Reimbursement of fees for 3 individual student preliminary exam registrations

Participation in <u>one</u> of the following programs up to $500 USD

Reimbursement for the purchase of study materials

Sponsorship for an approved on-campus event

Reimbursement of student travel costs/ registration fees to actuarial conferences

Benefits for all UCAP levels

- Dedicated university/college profile page on the SOA website includes key faculty contact information, course coverage for SOA exams, approved VEE courses and degrees offered
- Inclusion on the **SOA Explorer map** as a UCAP university or college
- Notification of university/college networking events
- Email communication from the SOA regarding exam/curriculum updates and news relevant to universities
- Alerts about opportunities that may not otherwise be available for universities/colleges not on the UCAP list
- UCAP universities and colleges are among those we regularly survey regarding university/college needs, SOA changes and new ideas.
- University/college faculty members encouraged to become members of the SOA Faculty Community on **SOA Engage** – allows for online networking among educators
- **Access** to candidate data for their university/college with regard to students' exams passed and credentials earned

Ready to apply for UCAP? Submit an application at **soa.org/UCAP-Application**. Any questions about UCAP can be directed to ***UCAP@soa.org***.

Centers of Actuarial Excellence (CAE) Program

The CAE Criteria—An Overview

The CAE program allows universities and colleges with outstanding actuarial programs the opportunity to be recognized for that achievement.

The CAE criteria are made up of four A-level criteria and four B-level criteria. To be designated a CAE, a university must meet or exceed all eight criteria.

- The four A criteria are quantitative in nature. They are initially evaluated directly from the application, but are also analyzed as part of site visits (particularly Criteria A.2: Curriculum and A.4: Faculty Composition).
- The four B criteria are qualitative in nature. They are reviewed initially based on the information provided in the CAE application. However, they are explored more thoroughly during a site visit completed by the CAE Evaluation Committee.

If you are interested in exploring the CAE criteria to see if your program may qualify, please review the criteria on the CAE page of the SOA website at **soa.org/cae**.

A Criteria	B Criteria
Criterion A.1: Identifiable major/degree in actuarial science	**Criterion B.1:** High-quality graduates as demonstrated by job placement, exam passing, etc.
Criterion A.2: Curriculum coverage at 80% or better on at least five preliminary exams, which must include SRM, FAM, and either ALTAM or ASTAM.	**Criterion B.2:** Integration with business/communication fields
Criterion A.3: Number of graduates averages 10 or more per year	**Criterion B.3:** Connection to industry
Criterion A.4: Faculty composition includes credentialed actuaries	**Criterion B.4:** Peer-reviewed actuarial research and other professional contributions

Benefits of Being a CAE

Here are some of the benefits of the CAE designation for an actuarial program:

- All benefits available to UCAP-IC and UCAP-AC universities
- Ability to promote the CAE status to students and employers and to use the branded CAE logo in promotional materials.
- SOA promotion of CAE through its website, articles and other means.
- Eligibility to participate in the University-Earned Credit (UEC) program. For more information about UEC, **visit soa.org/UEC**

In addition, CAE status:

- Assures prospective students that they will be well-prepared for actuarial practice;
- Assures employers that graduates have successfully completed a rigorous educational program and are prepared for professional practice;
- Assures alumni that the school maintains high standards for its actuarial science program, and that future graduates are prepared to address the challenges of tomorrow; and
- Provides leverage with university administration to maintain and/or enhance the current program.

Additional Support

We hope you have found this guide helpful. Here's how to contact us if you have more questions.

I need help with…	
General questions regarding the information in this guide or the related links	University Programs Team **UniversityPrograms@soa.org**
VEE (Validation by Educational Experience) requirement questions	VEE Coordinator **vee@soa.org**
Specific questions about achieving good coverage of the actuarial exams	University Programs Team **UniversityPrograms@soa.org**
Knowing if my school is ready to submit a CAE application	CAE Staff **CAE@soa.org**
Programming and Events for Students	SOA.org/affiliate **candidate@soa.org**
SOA volunteering opportunities	Volunteer Resource Coordinator **volunteer@soa.org**
General SOA education questions	**education@soa.org**
General SOA questions	**customerservice@soa.org** +1 888-697-3900