

**PROGRAM TO DESIGNATE
CENTERS OF ACTUARIAL EXCELLENCE**

A-Level Criteria

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A-Level Criteria

To be designated a Center of Actuarial Excellence (CAE), a school must pass each A-level criterion, either by meeting the quantitative guidelines provided below or by providing their argument as to how they meet the criterion on a facts and circumstances basis (in addition to meeting B-level criteria and passing a site visit). See Appendix A for general guidance on facts and circumstances arguments. Guidance for each A criterion includes examples of what facts and circumstances arguments would be (or would not be) considered.

The SOA reserves the right to change this guidance. In no case will any change to the guidance provided be considered a change in the criteria which would lead to the reconsideration of the award (or denial) of Center of Actuarial Excellence status.

Criterion A.1: The school must offer a program with an **identifiable major** or track in actuarial science (the term “major” will henceforth be used to refer to all actuarial programs). There must be a clear set of courses and other requirements, and it must be clear which students have earned the actuarial science major.

Students earning the actuarial science major can do so as part of a bachelors, masters, or doctoral degree program. Course catalog or other materials must clearly identify what is associated with a major in actuarial science, and the school should recognize the actuarial science major in the same way as it recognizes other majors.

Guidance

- Schools will show they satisfy this criterion by showing a recent published source (electronic or paper) that states the courses or other requirements that must be met for students to earn the actuarial science major. (One source is sufficient).
- It is acceptable if a school does not call “concentrations by discipline” a major but calls it something else, as long as that term is applied equally across the academic disciplines.
- It is not acceptable for a school to offer a concentration or certificate in actuarial science if most other disciplines have majors; in particular, the CEC will consider whether similarly situated departments (e.g. business, finance, accounting, risk management) have identified majors.
- In general we would not expect schools to be able to make a facts and circumstances demonstration for this criterion. The only reasonable exception might be if the school did not offer identifiable majors in most subjects (but it would still have to show the concentration of subject matter).

Criterion A.2: The **curriculum** for the undergraduate program (or graduate program if no undergraduate program exists) must cover at least 80% of the learning objectives in 4 of the 5 preliminary SOA examinations (currently P, FM, MFE, MLC, and C; the FAP modules are not included). The 80% threshold is per SOA examination. The school must offer courses that have been approved by the SOA for all VEE (Validation by Educational Experience) subjects.

Schools must provide course syllabus and mid-term/final exams for the undergraduate actuarial program. Schools must also complete and submit the tables provided in Appendix B to show how the program's syllabus and examinations tie to the SOA learning objectives and how that course (or combination of courses) achieves 80% of the learning objectives for a particular SOA examination (as described in the worksheets in Appendix B). If no undergraduate program exists please provide the requested information for the graduate actuarial program.

Guidance

- Courses approved for VEE credit must appear on the SOA's Directory of Approved VEE Courses.
- Schools must supply one or more of the following:
 - Course syllabus and/or detailed learning objectives, showing how the syllabus/learning objectives match to the SOA examination's learning objectives, and how that course (or combination of courses) achieves 80% of the learning objectives for a particular SOA examination (see Appendix B).
 - Course examinations, home work assignments and/or projects showing that the above has been evaluated.
- The SOA Learning Objectives Worksheet (Appendix B) provides the learning objectives for each of the 5 preliminary SOA examinations. For each exam, learning objectives carry equal weight. For learning objectives with sub-objectives, if only some are covered, then the appropriate fraction of a learning objective can be counted. For example, for SOA examination MLC:
 - There are 13 learning objectives for this exam. To meet the criterion, a total of 10.4 of those objectives must be covered.
 - For learning objective 2, either it is met or it is not. If only half-covered, it would contribute nothing to the total.
 - For learning objective 5, if only one life problems are covered, 0.5 can be counted.
- Learning objectives for a single exam do not have to be taught in a single course.
- Courses used to satisfy this criterion must be offered with sufficient frequency that a student can easily complete those courses that cover 80% of the learning objectives for 4 of the 5 preliminary SOA examinations.
- If the school offers multiple actuarial majors, the curriculum for each must satisfy this criterion. The courses need not be required for the degree, however, they must be easily available to students and offered with sufficient frequency that students can easily complete those courses that cover 80% of the learning objectives for 4 of the 5 preliminary SOA examinations.
- Schools may substitute for items in the SOA learning objectives. Facts and circumstances will be considered if the substitution of material presents techniques or principles that are more advanced/cutting-edge. It is not an acceptable facts and circumstances case if the course curriculum differs so sharply from the SOA learning objectives that a student would not be reasonably prepared for the SOA examination.
- It is not acceptable for the school to argue that courses are not offered for lack of student interest or resource availability.

- It is not sufficient for a school to say they meet the SOA learning objectives because they use the same texts and course readings as the SOA examinations. Schools must still show how their curriculum satisfies 80% of the learning objectives on at least 4 of the 5 preliminary SOA examinations.

Criterion A.3: The school must have produced an average of no less than ten **graduates per year** over the previous 4 years across all identifiable actuarial science majors.

Schools must provide a count of students graduating with an actuarial science major over the past 4 years. A list showing the names of graduating students is preferred but not required; the list can come from the department itself or could be a list published in another venue (e.g. graduation booklet, student newspaper). A year is an academic year as defined by the institution.

Guidance

- The total number of graduates can include bachelors, masters and doctoral programs to get to an average of ten graduates per year.
- Graduates are counted “within an academic year.” There is flexibility in defining that year as long as the school is consistent (each year in the 4 year period has to start on day X and end on day X-1.)
- We will take a list showing a count as sufficient evidence, provided it is from an official university source (such as the registrar’s office), but we prefer a list of names.
- Facts and circumstances arguments should focus on why, for the particular year or period in question, the number of graduates was less than 10. Reasonable facts and circumstances can include acts of God (an economic, social, biological, geological or environmental event outside the university’s control) which decreased graduate numbers across the university for a temporary period of time. Schools can use graduate levels for other periods to support their arguments.
 - Schools cannot use facts and circumstances arguments that apply to individual students. For example, we would have had ten graduates on average if Joe didn’t move and Mary didn’t drop out for financial reasons.
 - It is not an acceptable facts and circumstances case to argue that because the school is small, and the average major has less than 10 graduates, it is reasonable that there are less than 10 actuarial science graduates.

Criterion A.4: The **faculty** responsible for teaching actuarial courses and other program involvement must be sufficient in both quantity and quality. At least one faculty member must be full-time tenured or tenure-track and must be an actuary or pursuing actuarial credentials (Associate or Fellow).

Schools will be deemed to meet this criterion if they meet either (1a and 2) or (1b and 2) below:

- 1a. They have two faculty members who are PhD and Fellows.
- 1b. They have three faculty members who demonstrate a “substantial commitment to actuarial science.” Of these three faculty members, at least one must be a PhD and either one must be a Fellow or two must be Associates. The “substantial commitment to actuarial science” will be evidenced by teaching, research, and service.
2. At least one of the individual faculty members described in 1a or 1b above must be a) an actuary or pursuing actuarial credentials (Associate or Fellow), b) full-time, and c) tenured or tenure-track.

The school must show in its demonstration how it meets either 1a and 2 or 1b and 2.

Schools must provide a curriculum vitae (CV) and complete the Faculty Worksheet (provided in Appendix C) for each faculty member involved in the actuarial science program. Schools must indicate for each faculty member the amount of time and nature of activities that support the actuarial science program.

Note that “Associate” or “Fellow” apply broadly to designations bestowed by the Society of Actuaries, Casualty Actuarial Society, Canadian Institute of Actuaries, Institute of Actuaries (UK), Faculty of Actuaries (UK) or Institute of Actuaries of Australia.

Guidance

- Faculty counted to meet this criterion are faculty who show a strong and consistent relationship to the program, which in this case would include, but is not limited to, consistently teaching courses in the program; involvement in decisions regarding curriculum, students and schedules; mentoring of students; and participation in events organized by the department.
- For criterion 1b, the same person can be both a PhD and Fellow or a PhD and Associate and meet the criteria.
- Faculty that would not be considered include:
 - Faculty that teach VEE courses, unless the VEE course(s) is (are) specifically geared toward actuarial students.
 - Ad-hoc faculty that teach only occasional courses and have no presence on campus other than to teach the course (and perhaps hold limited office hours related to that course).

Faculty teaching courses related to exam P may or may not be counted, depending on the faculty’s ongoing commitment to the department as noted above.

- A doctoral degree can be in any subject.
- Substantive commitment to actuarial science comprised of teaching, research and service would include, but not be limited to, regularly teaching courses in the actuarial science major (required and electives); involvement in decisions regarding curriculum, students and schedules; mentoring of students; participation in events organized by the department; research that is published in actuarial science or related journals (including non-peer reviewed journals); research that is presented at professional meetings (academic, actuarial science or related industries where actuaries have a substantial presence); and contributions to professional activities (actuarial science or related industries where actuaries have a substantial presence) including speaking at meetings, serving on committees, participating in

the education system (e.g. writing questions, grading exams, setting syllabus, preparing study notes).

- Evidence includes teaching schedules, faculty CV and a narrative describing roles played by faculty in the department.
- Facts and circumstances arguments should focus on how their program faculty is sufficient in quantity and quality. Factors to be considered include number of faculty, faculty CV (including terminal degrees, actuarial credentials, commitment to actuarial science, involvement with program, employment status), how the composition of faculty for the actuarial science program compares to other similarly situated programs at the university, and school's existing hiring/tenure practices.
 - It is not acceptable for the school to argue that “the actuarial science department has always been constituted this way” when that fashion differs significantly from how other departments are structured at the university. It is expected that the composition of the actuarial science department will be reasonably similar to the composition of other similarly situated programs at the university.
 - It is not acceptable for the school to argue that the program size does not merit hiring faculty of sufficient quantity (e.g. we only have ten graduates per year, and therefore we only need one actuary on staff for that number of graduates).
 - It is not acceptable for a program to be dominated by adjunct faculty. For example, a program with one full-time faculty member and many adjunct faculty members would not meet the criterion. While adjunct faculty can provide valuable insights for students, this program faculty composition would not be considered sufficient in quality.