Brooklyn College
Department of Mathematics

Actuarial Professional Examinations

The Society of Actuaries (SOA) and the Casualty Actuarial Society (CAS) offer a range of professional examinations. Further detailed information can be found on www.beanactuary.org. The first level of certification offered by the SOA, leading to the title of Associate of the Society of Actuaries (ASA), includes five preliminary exams and a Validation by Educational Experience (VEE) requirement. The corresponding certification level offered by the Casualty Actuarial Society is called Associate of the Casualty Actuarial Society (ACAS).

The five preliminary exams are the following (with related Brooklyn College course sequences):

1. Exam P - Probability of SOA (identical to Exam 1 of CAS) develops the candidate's knowledge of probability tools for quantitatively assessing risk.

    Math 1201 → Math 1206 → Math 2201 → Math 3501 → Math 4501

2. Exam FM - Financial Mathematics of SOA (identical to Exam 2 of CAS) develops the candidate's understanding of valuing contingent cash flows, reserving, valuation, pricing, asset/liability management, investment, and capital budgeting.

    Math 1201 → Math 1206
    ⎧ Math 2601
    ⎨
    ⎩ Math 2201 → Math 3501 → Math 3601

3. Exam MFE - Models for Financial Economics of SOA (identical to Exam 3F of CAS) develops the candidate's knowledge of the theoretical basis of financial models and applications to modeling actuarial and financial risks.

    ⎧ Math 1201 → Math 1206 → Math 2201→ Math 3501 → Math 3601→ Math 4601
    ⎨
    ⎩ Acct 2001 → Busn 3310

4. Exam MLC - Models for Life Contingencies of SOA develops the candidate's knowledge of contingent payment models and its application to modeling actuarial and financial risk. Currently the CAS grants credit for its Exam 3L when someone has passed the SOA Exam MLC, but not vice versa.

    Math 1201 → Math 1206 → Math 2201 → Math 3501 → Math 3801

5. Exam C - Construction and Evaluation of Actuarial Models of SOA (identical to Exam 3F of CAS) provides an introduction to actuarial modeling, frequency and severity models, credibility theory and evaluation of actuarial models.

    Math 1201 → Math 1206 → Math 2201 → Math 3501 → Math 3802

Exam MLC is currently given as a four-hour exam twice per year, once in May, and once in November. It contains both multiple-choice and written-answer components. The other four are multiple-choice exams offered via computer-based testing. Exams P and FM are both three-hour long and are offered six times per year. Exams MFE and C are offered three times a year, but exam MFE is three-hour long while exam C is three-and-half-hour long. Exams can be taken in any order. Students aiming at a future actuarial career should try to pass at least two of the SOA or CAS professional examinations while in college. The more exams the student passes, the more opportunities will open for good summer internships and job placements upon graduation.

Another aspect of the professional actuarial education is the <u>Validation by Educational Experience (VEE) requirements</u>.

Specifically, the VEE requirements include the topical areas of economics (both micro-economic and macro-economic), corporate finance, and applied statistics. The following courses at Brooklyn College have been pre-approved as fulfilling these requirements. They should be completed with a grade of at least B-minus.

1. <u>VEE – Applied Statistical Methods</u>.
   i) Econ 4400W Advanced Economic and Business Statistics;
   ii) Math 4506 Time Series.
   Course sequence to fulfill this requirement:

   Math 1201 → Math 1206 → Math 2201 → Math 3501 $\left\{\begin{array}{l} \text{Econ 4400W} \\ \\ \text{Math 4501} \rightarrow \text{Math 4506} \end{array}\right.$

2. <u>VEE – Corporate Finance</u>.
   i) Busn 3310 Corporation Financial Management;
   ii) Math 3601 Investment Science.
   Course sequence to fulfill this requirement:

   $\left\{\begin{array}{l} \text{Math 1201} \rightarrow \text{Math 1206} \rightarrow \text{Math 2201} \rightarrow \text{Math 3501} \rightarrow \text{Math 3601} \\ \text{Acct 2001} \rightarrow \text{Busn 3310} \end{array}\right.$

3. <u>VEE – Economics</u>.
   i) Econ 2100 Elementary Macroeconomics;
   ii) Econ 2200 Elementary Microeconomics.

Students not completing the above VEE-related courses, or completing them with grade lower than B-minus, will be required to take alternative exams offered by the Actuarial Societies.

For further information, please feel free to contact:

Diogo Pinheiro
Office 1119c, Ingersoll Hall
Email: DPinheiro@brooklyn.cuny.edu