

“In the forefront of actuarial folklore stands the belief that the actuarial examinations constitute a mystery impenetrable by mortal man.” *Transactions of the Society of Actuaries* Volume 1 (1949)

### Required Courses for the BS degree in Actuarial Science

- CS:1210 Computer Science I: Fundamentals (4 s.h.)
- MATH:1850 Calculus I (4 s.h.)
- MATH:1860 Calculus II (4 s.h.)
- MATH:2700 Introduction to Linear Algebra (4 s.h.)
- MATH:2850 Calculus III (4 s.h.)
- MATH:3770 Fundamental Properties of Spaces and Functions I (4 s.h.)
- STAT:3100 Introduction to Mathematical Statistics I (3 s.h.)
- STAT:3101 Introduction to Mathematical Statistics II (3 s.h.)
- STAT:4100 Mathematical Statistics I (3 s.h.)
- STAT:4101 Mathematical Statistics II (3 s.h.)
- ACTS:3080 Mathematics of Finance I (3 s.h.)
- ACTS:4130 Quantitative Methods for Actuaries (3 s.h.)
- ACTS:4180 Life Contingencies I (3 s.h.)
- ACTS:4280 Life Contingencies II (3 s.h.)
- **Either** ACTS:4380 Mathematics of Finance II **or** the new “Fundamentals of Short-term Actuarial Mathematics” (For Spring 2022, the course is ACTS:4160 Topics in Actuarial Science) (3 s.h.)

Courses for the General Education requirements are not shown on the list above. The required MATH courses will qualify you for a Minor in Mathematics. You can get a BA degree in Mathematics (Program C) by taking two more MATH courses – a post-calculus course (MATH:3600 Introduction to Ordinary Differential Equations recommended) and an upper-level course. For satisfying the General Education requirements in Natural Sciences, calculus-based courses such as PHYS:1701, 1702 are recommended.

The table below shows the correspondence between SOA exams and UI courses.

SOA Examinations	U of Iowa Courses
FM Financial Mathematics	ACTS:3080, 3210
P Probability	STAT:3100 and/or 4100; ACTS:3110
IFM Investment and Financial Markets. <b>This SOA exam will be offered for the last time in November 2022. Passing it will give you exemption for the new “Advanced Topics in Predictive Analytics” exam.</b>	ACTS:4380; FIN:3300 (4380 will be offered for the last time in Spring 2022. 3300 can satisfy a VEE requirement of the SOA.)
FAM-S Fundamentals of Short-term Actuarial Math	STAT:4101; ACTS:4160 (4160 is only for Spring 2022. There will be a new course number beginning 2023.)
LTAM = FAM-L + ALTAM Long-term Act Math = Fundamentals of Long-term Actuarial Math + Advanced Long-term Act Math <b>LTAM is the hardest of all exams.</b>	ACTS:4130, 4180, 4280; STAT:4101
SRM Statistics for Risk Modeling	STAT:4560 and 4561 (4561 will be offered for the first time in Spring 2023.)
PA Predictive Analytics <b>Exam PA is about computer applications of the theory in Exam SRM.</b>	ACTS:6160 (6160 is only for Spring 2022. There will be a new course number beginning 2023.)

The following table shows how SOA’s VEE requirements can be satisfied by U of Iowa courses (B–grade or higher), Advanced Placement Examinations (grade 4 or 5), or College Level Examination Program Tests (grade between 53 and 80).

VEE	UI Courses	AP Exams	CLEP Tests
Accounting & Finance	ACCT:2100, FIN:3300		Financial Accounting
Economics	ECON:1100, 1200 or ECON:3100, 3150	Micro, Macro	Micro, Macro
Mathematical Statistics	STAT:3101 or 4101 or 5101		

The SOA accepts courses taken at other universities or community colleges; see SOA’s “VEE Directory of Approved Courses and Alternate Options.” Also, see the answer to “Can I use transferred courses for VEE credit?” in <https://www.soa.org/Education/Exam-Req/Resources/edu-vee-approval-faq.aspx>.

Below is a sample plan of study for the BS degree in Actuarial Science for a student who needs to start from Calculus I. General Education requirements are not shown. The courses in red are not required for the BS degree. However, you are strongly encouraged to take them because you need them for passing SOA exams. They are also part of the requirement for Honors in the Major.

Year	Fall Semester	Spring Semester
1	CS:1210 Computer Science I: Fundamentals MATH:1850 Calculus I	MATH:1860 Calculus II MATH:2700 Introduction to Linear Algebra
2	MATH:2850 Calculus III STAT:3100 Introduction to Mathematical Statistics I	ACTS:3080 Mathematics of Finance I MATH:3770 Fundamental Properties of Spaces and Functions I STAT:3101 Introduction to Mathematical Statistics II
3	ACTS:4130 Quantitative Methods for Actuaries STAT:4100 Mathematical Statistics I	ACTS:4180 Life Contingencies I ACTS:4380 Mathematics of Finance II or ACTS:4160 Fundamentals of Short-term Actuarial Math STAT:4101 Mathematical Statistics II
4	ACTS:4280 Life Contingencies II STAT:4560 Statistics for Risk Modeling I	STAT:4561 Statistics for Risk Modeling II (Will be offered starting Spring 2023) ACTS:6160 Predictive Analytics

### Notes

- (i) ACTS:3080 and FIN:3300 are offered both fall and spring semesters. FIN:3300 is usually also offered in the summer; it (and the accounting course ACCT:2100) may be offered in Distance and Online Education (DOE) mode.
- (ii) Most undergraduate students will take ACTS:3080, the course for Exam FM, in their sophomore year, while transfer students will probably take it in the fall semester of their junior year. Freshmen with good calculus grades can seek permission to take ACTS:3080 in their spring semester. Taking ACTS:3080 earlier can mean passing Exam FM earlier.
- (iii) For actuarial science majors, ACTS:3080 serves as pre-requisite for FIN:3300; there is no need to take FIN:3000. <https://stat.uiowa.edu/resources/news-announcements/corporate-finance-information-order-register-fin3300-corporate-finance#overlay-context=>
- (iv) Exams FM and P, easiest of all actuarial examinations, are offered six times each year. Exam P is offered in January, March, May, July, September, and November, and FM in February, April, June, August, October, and December. To help you pass these two examinations, we have two pass/fail 1 s.h. prep courses, ACTS:3110 and 3210. These two exams are not ordered; you can write P before FM, or FM before P. There is no public record of how many times you have attempted an actuarial examination; in other words, failing an actuarial exam has no penalty other than the exam fee. Other people can find out whether you have passed any exam by using <http://www.actuarial-lookup.com/>
- (v) The nearest Prometric Test Center is in Hiawatha.