“In the forefront of actuarial folklore stands the belief that the actuarial examinations constitute a mystery impenetrable by mortal man.”


“The primary unifying force of the actuarial profession in North America is the shared experience of the actuarial exams. These difficult and competitive exams . . . yield a bond among actuaries that is stronger and longer lasting than that produced by the entry trials of other professions and careers. Actuaries are unique in the extent to which they remember and discuss their qualifying process, contribute their time to the education and examinations of prospective actuaries, and share a sense of community with those who have traveled the same road. The exams are sufficiently difficult to produce a sense of accomplishment best appreciated by other successful candidates.”


“The main purpose of the actuarial examinations is to separate the horses from the donkeys.”

Anonymous

The following table shows the correspondence between the five Society of Actuaries (SOA) preliminary examinations and University of Iowa (UI) courses.

<table>
<thead>
<tr>
<th>SOA Examination</th>
<th>UI Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>P Probability</td>
<td>STAT:3100 and/or 4100</td>
</tr>
<tr>
<td>FM Financial Mathematics</td>
<td>ACTS:4130, 3080</td>
</tr>
<tr>
<td>MFE Models for Financial Economics</td>
<td>ACTS:4130, 4380</td>
</tr>
<tr>
<td>MLC Models for Life Contingencies</td>
<td>ACTS:4130, 4180, 4280</td>
</tr>
<tr>
<td>C Construction &amp; Evaluation of Actuarial Models</td>
<td>STAT:4101, ACTS:6480, 6580</td>
</tr>
</tbody>
</table>

The Casualty Actuarial Society (CAS) gives credits for these five SOA exams. Also, it offers Exam ST. Ninety percent of the syllabus for Exam ST is covered in STAT:4100 and STAT:4101; the remaining ten percent is a small study note on Poisson processes, a topic treated in STAT:6300. The course STAT:6300 also covers continuous-time Markov chains, which is needed in Exam MLC. The course MATH:3600 is useful for both MFE and MLC.

The following table shows how the three CAS/SOA Validation by Educational Experience (VEE) requirements can be satisfied by UI courses.

<table>
<thead>
<tr>
<th>VEE</th>
<th>UI Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economics</td>
<td>ECON:1100, 1200 or ECON:3100, 3120</td>
</tr>
<tr>
<td>Corporate Finance</td>
<td>FIN:3300</td>
</tr>
<tr>
<td>Applied Statistical Methods</td>
<td>STAT:4510 or STAT:3200, 6560 or STAT:5200, 6560</td>
</tr>
</tbody>
</table>

The pre-requisite for STAT:3200 is STAT:2010 (22S:030) or STAT:2020 (22S:039).
The following UI courses are offered only once each year.

<table>
<thead>
<tr>
<th>Fall Semester Only</th>
<th>Spring Semester Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTS:4280</td>
<td>ACTS:4180, 4380, 6480, 6580</td>
</tr>
<tr>
<td>STAT:3100, 4510</td>
<td>STAT:3101</td>
</tr>
</tbody>
</table>

Exams P and FM are offered six times each year. P is offered in January, March, May, July, September, and November, and FM in February, April, June, August, October, and December. As P and FM are based on introductory courses, many recruiters expect their applicants to have at least passed these two examinations. There is no public record of how many times a student has attempted an actuarial exam; in other words, failing an actuarial exam has no penalty other than the exam fee. Students should not postpone writing these two exams.

Exams MFE and C are offered three times a year. MFE is offered in March, July, and November, and C in February, June, and October.

Unlike Exams P, FM, MFE and C, Exam MLC is not computer-based and is offered only twice each year. MLC is a four-hour exam consisting of multiple-choice and written-answer questions. The course ACTS:4280 is taught in an accelerated manner so that it ends just before the fall MLC exam date (end of October).

Selective Admission to Actuarial Science

Students interested in becoming actuaries should declare an Interest in Actuarial Science as their major when they enter the university. Ordinarily, students apply for admission to the Actuarial Science major in the fall semester of their sophomore year, after they have taken Math:2850 (22M:028) Calculus III [or MATH:3770 (22M:055) Fundamental Properties of Spaces and Functions I] and STAT:3100 (22S:130) Introduction to Mathematical Statistics I.

http://www.stat.uiowa.edu/undergraduate-programs/bs-actuarial-science

Required Coursework

- CS:1210 (22C:016) Computer Science I: Fundamentals (4 s.h.)
- ECON:1100 (06E:001) Principles of Microeconomics (4 s.h.)
- ECON:1200 (06E:002) Principles of Macroeconomics (4 s.h.)
- MATH:1850 (22M:025) Calculus I (4 s.h.)
- MATH:1860 (22M:026) Calculus II (4 s.h.)
- MATH:2700 (22M:027) Introduction to Linear Algebra (4 s.h.)
- MATH:2850 (22M:028) Calculus III (4 s.h.)
- MATH:3770 (22M:055) Fundamental Properties of Spaces and Functions I (4 s.h.)
- STAT:3100 (22S:130) Introduction to Mathematical Statistics I (3 s.h.)
- STAT:3101 (22S:131) Introduction to Mathematical Statistics II (3 s.h.)
- STAT:4100 (22S:153) Mathematical Statistics I (3 s.h.)
- STAT:4101 (22S:154) Mathematical Statistics II (3 s.h.)
- ACTS:3080 (22S:180) Mathematics of Finance I (3 s.h.)
- ACTS:4130 (22S:174) Quantitative Methods for Actuaries (3 s.h.)
- ACTS:4180 (22S:181) Life Contingencies I (3 s.h.)
- ACTS:4280 (22S:182) Life Contingencies II (3 s.h.)
- ACTS:4380 (22S:183) Mathematics of Finance II (3 s.h.) [This course may be substituted with BOTH ACTS:6480 (22S:177) Loss Distributions (3 s.h.) and ACTS:6580 (22S:176) Credibility and Survival Analysis (3 s.h.).]

Sample Schedule

<table>
<thead>
<tr>
<th>Year</th>
<th>Fall Semester</th>
<th>Spring Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MATH:1850 Calculus I</td>
<td>MATH:1860 Calculus II</td>
</tr>
<tr>
<td></td>
<td>CS:1210 Computer Science I: Fundamentals</td>
<td>MATH:2700 Introduction to Linear Algebra</td>
</tr>
<tr>
<td></td>
<td>ECON:1100 Principles of Microeconomics (for VEE)</td>
<td>ECON:1200 Principles of Macroeconomics (for VEE)</td>
</tr>
<tr>
<td>2</td>
<td>MATH:2850 Calculus III</td>
<td>MATH:3770 Fundamental Properties of Spaces and Functions I</td>
</tr>
<tr>
<td></td>
<td>ACTS:4130 Quantitative Methods for Actuaries</td>
<td>ACTS:3080 Mathematics of Finance I (Exam FM)</td>
</tr>
<tr>
<td>3</td>
<td>STAT:4100 Mathematical Statistics I</td>
<td>STAT:4101 Mathematical Statistics II</td>
</tr>
<tr>
<td></td>
<td>ACTS:4130 Quantitative Methods for Actuaries</td>
<td>ACTS:4180 Life Contingencies I (Exam MLC)</td>
</tr>
<tr>
<td></td>
<td>ACTS:4280 Life Contingencies II (Exam MLC)</td>
<td>ACTS:4380 Mathematics of Finance II (Exam MFE)</td>
</tr>
<tr>
<td></td>
<td>STAT:4510 Regression, Time Series and Forecasting (for VEE)</td>
<td>FIN:3300 Corporate Finance (for VEE)</td>
</tr>
<tr>
<td>4</td>
<td>ACTS:4280 Life Contingencies II (Exam MLC)</td>
<td>ACTS:6480 Loss Distributions (Exam C)</td>
</tr>
<tr>
<td></td>
<td>STAT:4510 Regression, Time Series and Forecasting (for VEE)</td>
<td>ACTS:6580 Credibility and Survival Analysis (Exam C)</td>
</tr>
</tbody>
</table>

MATH:3600 (22M:100) Introduction to Ordinary Differential Equations (useful for Exams MFE and MLC) and STAT:6300 (22S:195) Probability and Stochastic Processes I (useful for Exam MLC) are highly recommended.

Graduation with Honors in Actuarial Science

Honors students in actuarial science must be members of the University of Iowa Honors Program, which requires that students maintain a cumulative University of Iowa GPA of at least 3.33. They also must maintain a GPA of at least 3.40 in departmental courses.

To graduate with honors in the actuarial science major, students must complete the following five courses in addition to all courses required for the major.
FIN:3300 (06F:117) Corporate Finance 3 s.h.
MATH:3600 (22M:100) Introduction to Ordinary Differential Equations 3 s.h.
STAT:4510 (22S:150) Regression, Time Series, and Forecasting (or 22S:152 & 156) 3 s.h.
ACTS:6480 (22S:177) Loss Distributions 3 s.h.
ACTS:6580 (22S:176) Credibility and Survival Analysis 3 s.h.

Second Major in Mathematics (Program C)
MATH:3600 (22M:100) Introduction to Ordinary Differential Equations (3 s.h.) recommended
One more mathematics course approved by the Department of Mathematics

Second Major in Statistics (Mathematical Statistics)
STAT:2010 (22S:030) Statistical Methods and Computing (3 s.h.)
STAT:3200 (22S:152) Applied Linear Regression (3 s.h.)
STAT:3210 (22S:158) Experimental Design and Analysis (3 s.h.)
STAT:6300 (22S:195) Probability and Stochastic Processes I (3 s.h.) recommended

Business Minor
ACCT:2100 (06A:001) Introduction to Financial Accounting
ACCT:2200 (06A:002) Managerial Accounting
MGMT:2000 (06J:047) Introduction to Law
MGMT:2100 (06J:048) Introduction to Management
MKTG:3000 (06M:100) Introduction to Marketing Strategy
FIN:3300 (06F:117) Corporate Finance (in place of FIN:3000)

Risk Management and Insurance Certificate
FIN:3400 (06F:102) Principles of Risk Management and Insurance
Other requirements can be found in

Gamma Iota Sigma is an international risk management, insurance and actuarial science collegiate fraternity. The University of Iowa Beta Alpha Chapter of GIS was chartered in April 2007 by the national fraternity.  http://www.biz.uiowa.edu/gis/

Actuarial Science Club
Intern Night
Actuarial Science, Insurance, and Risk Management Job Fair
Alumni lists  http://www.stat.uiowa.edu/people/alumni