Actuarial science involves the construction and management of insurance and pension systems using knowledge from statistics/data science, mathematics, economics, finance, and computer science. The field of actuarial science centers on data analytics for risk assessment. The Actuarial Science (https://wsb.wisc.edu/programs-degrees/undergraduate-bba/academics/majors/#actuarial-science) major curriculum prepares students for careers with insurance companies, consulting firms, healthcare organizations, and government organizations. Courses offered cover the material of the preliminary examinations of the Casualty Actuarial Society and the Society of Actuaries as well as more advanced subjects such as regression analysis, health analytics, and machine learning. While it is not required for students to sit for actuarial exams, more than 90% of our students pass at least two professional exams before they graduate.

MISSION
The actuarial science program distinguishes itself through leadership, innovation, community, connections, networks, and recognition of the quality of the faculty, the courses, and the students.

RELATED ORGANIZATIONS
Actuarial Club (https://www.actuarialclubuw.org/)
Co-Curricular Learning Board (https://bus.wisc.edu/faculty-research/academic-departments/risk-and-insurance/beyond-degrees/engagement-opportunities/co-curricular-learning-board/)
ACT SCI 303 | Theory of Interest | 3
ACT SCI 650 | Actuarial Mathematics I | 3
ACT SCI 652 | Loss Models I | 3
ACT SCI 651 | Actuarial Mathematics II | 3
or ACT SCI 653 | Loss Models II | 3
ACT SCI 654 | Regression and Time Series for Actuaries | 3
or ACT SCI 655 | Health Analytics | 3
or GEN BUS 656 | Machine Learning for Business Analytics | 3

Total Credits | 23

The two statistics courses and the last ACT SCI 654 Regression and Time Series for Actuaries or ACT SCI 655 Health Analytics (as a group of 3 courses) also fulfill the business analytics requirement found in the BBA Business Prep Requirements.

RECOMMENDED ELECTIVES

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 234</td>
<td>Calculus—Functions of Several Variables</td>
<td>4</td>
</tr>
<tr>
<td>MATH 340</td>
<td>Elementary Matrix and Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>R M I 300</td>
<td>Principles of Risk Management</td>
<td>3</td>
</tr>
<tr>
<td>FINANCE/ECON 320</td>
<td>Investment Theory</td>
<td>3</td>
</tr>
<tr>
<td>COMP SCI 200</td>
<td>Programming I</td>
<td>3</td>
</tr>
</tbody>
</table>

Students are encouraged to take MATH 234 Calculus—Functions of Several Variables before taking probability (MATH/STAT 431 Introduction to the Theory of Probability, STAT/MATH 309 Introduction to Probability and Mathematical Statistics I, or STAT 311 Introduction to Theory and Methods of Mathematical Statistics I), courses in risk management and insurance; finance; and computer science.

LEARNING OUTCOMES

1. Recognize and explain the concept of risk, and apply the knowledge to the development of insurance products that are used to manage risk for the consumer as well as the risk of those products on the insurance organization.
2. Describe the actuarial profession, including the major professional organizations, the professional obligations of being an actuary, and the requirements to obtain and maintain a professional actuarial designation.
3. Demonstrate skills in critical thinking, quantitative analysis, and communication, as well as to develop an appreciation for actuarial theory, research, and the link to practical application.
4. Demonstrate the soft skills of being a professional.
5. Communicate their experiences and inspire others across the WSOB learning community.

FOUR-YEAR PLAN

This is a sample four-year plan for students directly admitted into the School of Business from high school. We encourage all students to consult with their academic advisor to develop an individualized plan that meets their specific needs.

Freshman

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
<th>Summer</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 221</td>
<td>5</td>
<td>MATH 222</td>
<td>4</td>
<td>ACCT I S 100</td>
<td>3</td>
</tr>
<tr>
<td>ECON 101</td>
<td>4</td>
<td>ECON 102</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEN BUS 110</td>
<td>4</td>
<td>PSYCH 202</td>
<td>3</td>
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</tr>
<tr>
<td>Communications A</td>
<td>3</td>
<td>Ethnic Studies</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sophomore

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
<th>Summer</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 234</td>
<td>4</td>
<td>STAT/ MATH 309, 311, or MATH 431</td>
<td>3</td>
<td>M H R 300 or MARKETING 300</td>
<td>3</td>
</tr>
<tr>
<td>ACT SCI 301</td>
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<td>R M I 300</td>
<td>3</td>
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<tr>
<td>ACT SCI 303</td>
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<td>FINANCE/ ECON 300</td>
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</tr>
<tr>
<td>OTM 300</td>
<td>3</td>
<td>ACCT I S 211</td>
<td>3</td>
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</tr>
<tr>
<td>GEN BUS 300</td>
<td>3</td>
<td>M H R 300 or MARKETING 300</td>
<td>3</td>
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</tr>
</tbody>
</table>

Junior

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACT SCI 300</td>
<td>1</td>
<td>ACT SCI 653</td>
<td>3</td>
</tr>
<tr>
<td>ACT SCI 652</td>
<td>3</td>
<td>ACT SCI 654 or 655</td>
<td>3</td>
</tr>
<tr>
<td>STAT/ MATH 310 or 312</td>
<td>3</td>
<td>Humanities, Social Science, or Literature</td>
<td>3</td>
</tr>
<tr>
<td>Humanities, Social Science, or Literature</td>
<td>3</td>
<td>Humanities, Social Science, or Literature</td>
<td>3</td>
</tr>
</tbody>
</table>
Elective 3 Communications B 3-4

Senior
Fall Credits Spring Credits
ACT SCI 650 3 ACT SCI 651 3
ACT SCI 654, 655, or GEN BUS 656 3 FINANCE 330 3
Science 3 GEN BUS 301 3
Ethics1 4 Science 3
FINANCE/ECON 320 3 Elective 3

Total Credits 16 15

1 Students must choose one of the following courses: PHILOS 241 Introductory Ethics, PHILOS 243 Ethics in Business, PHILOS 341 Contemporary Moral Issues, ENVIR ST/PHILOS 441 Environmental Ethics

Total Credits 121-122

For more information on accessing academic advising, please see our academic advising page (https://bus.wisc.edu/current-student-resources/bba/academic-support-resources/academic-advising/).

For more information on accessing career coaching, please see our career coaching page (https://bus.wisc.edu/current-student-resources/bba/careers-internships/career-advising/).

Actuarial program faculty offer advising nights every fall semester to help students plan their course sequencing and professional exams.

CAREERS

Actuaries are problem solvers with expertise in understanding and managing financial risk. They use historical information and models to help predict the future. Actuaries may specialize in life and health (risk of illness, disability or death), pensions (develop and analyze retirement programs) or property and casualty (personal property risks and risks associated with businesses).

Find out more about common industries and essential skills needed to be an actuary on the Undergraduate Actuarial Science website (https://wsb.wisc.edu/programs-degrees/undergraduate-bba/academics/majors/#actuarial-science).

PEOPLE

FACULTY AND STAFF IN RISK AND INSURANCE

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Lecturer
paul.johnson@wisc.edu
CERTIFICATION/LICENSURE

There are several exams and credentials from the Casualty Actuarial Society (http://www.casact.org/) and the Society of Actuaries (https://www.soa.org) that we prepare students to obtain during their undergraduate career. Students are encouraged to pass at least two actuarial exams before graduation in order to obtain an internship and/or job.

PROFESSIONAL CERTIFICATION/LICENSURE DISCLOSURE (NC-SARA)

The United States Department of Education requires institutions that provide distance education to disclose information for programs leading to professional certification or licensure about whether each program meets state educational requirements for initial licensure or certification. Following is this disclosure information for this program:

The requirements of this program meet Certification/Licensure in the following states:

Wisconsin

The requirements of this program do not meet Certification/Licensure in the following states:

The requirements of this program have not been determined if they meet Certification/Licensure in the following states:


RESOURCES AND SCHOLARSHIPS

If you are good at math and are interested in pursuing a career as an actuary, apply for our High School Actuarial Scholarship (https://bus.wisc.edu/faculty-research/academic-departments/risk-and-insurance/actuarial-profession-awareness/).

ACCREDITATION

AACSB International—The Association to Advance Collegiate Schools of Business (http://www.aacsb.edu/)