**BUSINESS: ACTUARIAL SCIENCE, BBA**

**OVERVIEW**

Actuarial science deals with the application of mathematics, statistics, and the principles of finance to the construction and management of insurance and pension systems. The curriculum prepares students for careers with insurance companies, consulting firms, and governmental agencies. Courses offered cover the material of the associateship examinations of the Society of Actuaries and the Casualty Actuarial Society, although it is not expected that a student will complete these examinations in the course of the undergraduate program.

**MISSION**

The actuarial science program distinguishes itself through leadership, innovation, community, connections, networks, and recognition.

**RELATED ORGANIZATIONS**

- Actuarial Club ([http://win.wisc.edu/organization/actclub](http://win.wisc.edu/organization/actclub))

**HOW TO GET IN**

Students wishing to pursue this major must be admitted to the School of Business. Once admitted, students are able to pursue any business major they choose. To find out more about the school's admissions process for undergraduate students, please see Entering the School ([http://guide.wisc.edu/undergraduate/business/#enteringtheschooltext](http://guide.wisc.edu/undergraduate/business/#enteringtheschooltext)).

**REQUIREMENTS**

### UNIVERSITY GENERAL EDUCATION REQUIREMENTS

All undergraduate students at the University of Wisconsin–Madison are required to fulfill a minimum set of common university general education requirements to ensure that every graduate acquires the essential core of an undergraduate education. This core establishes a foundation for living a productive life, being a citizen of the world, appreciating aesthetic values, and engaging in lifelong learning in a continually changing world. Various schools and colleges will have requirements in addition to the requirements listed below. Consult your advisor for assistance, as needed. For additional information, see the university Undergraduate General Education Requirements ([http://guide.wisc.edu/undergraduate/#requirementsforundergraduatetestudytext](http://guide.wisc.edu/undergraduate/#requirementsforundergraduatetestudytext)) section of the Guide.

### ACTUARIAL SCIENCE MAJOR REQUIREMENTS

The following courses are required for actuarial science majors. The Risk and Insurance Department also has course sequence information. Please be aware of stated prerequisites for major courses (including business core courses) that need to be completed before taking the course. Specific prerequisites can be found by clicking on the course number below.

**Requirements Detail**

**General Education**

- Breadth—Humanities/Literature/Arts: 6 credits
- Breadth—Natural Science: 4 to 6 credits, consisting of one 4- or 5-credit course with a laboratory component; or two courses providing a total of 6 credits
- Breadth—Social Studies: 3 credits
- Communication Part A & Part B *
- Ethnic Studies *
- Quantitative Reasoning Part A & Part B *

* The mortarboard symbol appears before the title of any course that fulfills one of the Communication Part A or Part B, Ethnic Studies, or Quantitative Reasoning Part A or Part B requirements.

**SCHOOL OF BUSINESS REQUIREMENTS**

The Wisconsin Bachelor of Business Administration (BBA) degree program is based on a broad educational foundation combined with courses in business and economics. This curriculum is designed for those students who wish to prepare for careers in business. Students completing any School of Business major ([http://guide.wisc.edu/undergraduate/business/#requirementstext](http://guide.wisc.edu/undergraduate/business/#requirementstext)) are required to satisfy a common set of Pre-Business Requirements, Liberal Studies Requirements, Business Preparatory Requirement, Business Core Requirement, Business Breadth Requirement, and Credits for BBA Degree.

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td></td>
<td><strong>School of Business BBA Requirements</strong></td>
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<td>Complete requirements: (<a href="http://guide.wisc.edu/undergraduate/business/#requirementstext">http://guide.wisc.edu/undergraduate/business/#requirementstext</a>)</td>
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<td><strong>Pre-Business</strong></td>
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<td><strong>Liberal Studies</strong></td>
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<td><strong>Business Prep</strong></td>
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<td></td>
<td><strong>Business Core</strong></td>
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<td></td>
<td><strong>Business Breadth</strong></td>
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<td></td>
<td><strong>ACTUARIAL SCIENCE MAJOR REQUIREMENTS</strong></td>
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<tr>
<td>MATH/STAT 431</td>
<td>Introduction to the Theory of Probability ¹</td>
<td>3</td>
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<td>or STAT/</td>
<td>Introduction to Probability and Mathematical Statistics I</td>
<td></td>
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<tr>
<td>MATH 309</td>
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<tr>
<td>or STAT 311</td>
<td>Introduction to Theory and Methods of Mathematical Statistics I</td>
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<tr>
<td>STAT/MATH 310</td>
<td>Introduction to Probability and Mathematical Statistics II ¹</td>
<td>3</td>
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<tr>
<td>or STAT 312</td>
<td>Introduction to Theory and Methods of Mathematical Statistics II</td>
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<tr>
<td>ACT SCI 300</td>
<td>Actuarial Science Methods I</td>
<td>1</td>
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**Code**

- MATH/STAT 431
- or STAT/MATH 309
- or STAT 311
- STAT/MATH 310
- or STAT 312
- ACT SCI 300

1. Please be aware of stated prerequisites for major courses (including business core courses) that need to be completed before taking the course. Specific prerequisites can be found by clicking on the course number below.
ACT SCI 301 Actuarial Science Methods II 1
ACT SCI/MATH 303 Theory of Interest and Life Insurance 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
Total Credits 23

1 The two statistics courses and the last ACT SCI 654 or ACT SCI 655 (as a group of 3 courses) also fulfill the business analytics requirement found in the BBA Business Prep Requirements.

RECOMMENDED ELECTIVES

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<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<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>
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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.

UNIVERSITY DEGREE REQUIREMENTS

Requirements Detail

Total Degree To receive a bachelor's degree from UW–Madison, students must earn a minimum of 120 degree credits. The requirements for some programs may exceed 120 degree credits. Students should consult with their college or department advisor for information on specific credit requirements.

Residency Degree candidates are required to earn a minimum of 30 credits in residence at UW–Madison. "In residence" means on the UW–Madison campus with an undergraduate degree classification. "In residence" credit also includes UW–Madison courses offered in distance or online formats and credits earned in UW–Madison Study Abroad/Study Away programs.

Quality of Work Undergraduate students must maintain the minimum grade point average specified by the school, college, or academic program to remain in good academic standing. Students whose academic performance drops below these minimum thresholds will be placed on academic probation.

LEARNING OUTCOMES

1. Graduates will 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. Graduates will 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. Graduates will 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. Graduates will demonstrate the soft skills of being a professional.
5. Graduates will communicate their experiences and inspire others across the WSOB learning community.

ADVISING AND CAREERS

ADVISING

MEET THE ACADEMIC AND CAREER ADVISORS FOR ACTUARIAL SCIENCE

Tara Milliken
Career Advisor
tara.milliken@wisc.edu

Maggie Nowicki
Academic Advisor
maggie.nowicki@wisc.edu

Please visit the advising page (http://www.bus.wisc.edu/bba/mybiz/advising) for information on advising and appointments.

Contact wibbaadvising@bus.wisc.edu for questions regarding academic advising.

The Actuarial Club offers advising nights every fall semester to help students plan their course sequencing and professional exams. Additionally, students should use the following documents (https://bus.wisc.edu/bba/academics-and-programs/majors/4E50E872FC40499482A19F39073D05B.ashx) to help them prepare their course and exam schedule.

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 BBA Actuarial Science website (https://bus.wisc.edu/bba/academics-and-programs/majors/actuarial-science).

PEOPLE

FACULTY AND STAFF IN RISK AND INSURANCE

Dan Anderson (https://bus.wisc.edu/faculty/dan-anderson), BA, MBA, Ph.D.
Emeritus - Non-teaching
CERTIFICATION/LICENSURE

ACTUARIAL CREDENTIALS

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 2 actuarial exams before graduation in order to obtain an internship and/or job.

RESOURCES AND SCHOLARSHIPS

ACTUARIAL SCIENCE HIGH SCHOOL SCHOLARSHIP

If you are good at math and are interested in pursuing a career as an actuary, apply for our High School Actuarial Scholarship. The first place award of $2,000 per year for four years will be given to a high school senior on the basis of mathematical aptitude and expressed interest in an actuarial career. The deadline for application is March 1, 2017. You can download the scholarship application here (http://bus.wisc.edu/~media/business-expertise/academic-departments/asrmi/hs-outreach/hs-application-2017.pdf?la=en).