

IOWA

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Department of Statistics & Actuarial Science

The University of Iowa is home to over 32,199 students. In the fall of 2024, there were 22,738 undergraduate students enrolled in the College of Liberal Arts. Currently, our department has 302 undergraduate students who have declared majors in actuarial science, data science and/or statistics.





Students interested in becoming actuaries should **declare** Actuarial Science as their **major** when they apply to the university.

Students who do well in prerequisite math courses tend to be most successful in Actuarial Science.

Students who **declare an Actuarial Science** major are advised by the Academic Advising Center located in the Pomerantz Center. After receiving 30 semester hours they are transferred to our professional advisors.

We also have a graduate program in Actuarial Science and many students continue on and work towards a PhD in Statistics with the emphasis of Actuarial Science.

Department of Statistics & Actuarial Science

Declared Majors- Fall 2024

UI Official Count

Day: 09/10/2024

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| Graduate Students | | USA | International | Total |
|---|-----------------------------------|------------|---------------|------------|
| <i>Total Number in Graduate Program</i> | | 29 | 47 | 76 |
| PhD | | USA | International | Total |
| 1st Year | | 0 | 2 | 2 |
| Continuing Students | | 1 | 11 | 12 |
| Total | | 1 | 13 | 14 |
| MS Statistics | Does not include U2G Statistics | USA | International | Total |
| 1st Year | | 1 | 2 | 3 |
| Continuing Students | | 2 | 7 | 9 |
| Total | | 3 | 9 | 12 |
| MS Actuarial Science | | USA | International | Total |
| 1st Year | | 4 | 0 | 4 |
| Continuing Students | | 2 | 3 | 5 |
| Total | | 6 | 3 | 9 |
| MS DATA SCIENCE | Does not include U2G Data Science | USA | International | Total |
| 1st Year | | 4 | 7 | 11 |
| Continuing Students | | 1 | 13 | 14 |
| Total | | 5 | 20 | 25 |
| BS/MS U2G Data Science | | USA | International | Total |
| 1st Year | | 6 | 0 | 6 |
| Continuing Students | | 8 | 0 | 8 |
| Total | | 14 | 0 | 14 |
| BS/MS U2G Statistics | | USA | International | Total |
| 1st Year | | 0 | 1 | 1 |
| Continuing Students | | 0 | 1 | 1 |
| Total | | 0 | 2 | 2 |
| Undergraduate Students | | | | |
| <i>Total Number in Undergraduate Program Declared</i> | | USA | International | Total |
| Total Number | | 295 | 7 | 302 |
| Statistics | | USA | International | Total |
| <i>Primary Program Declared</i> | | 49 | 2 | 51 |
| <i>Secondary Program Declared</i> | | 33 | 1 | 34 |
| Total Declared | | 82 | 3 | 85 |
| Actuarial Science | | USA | International | Total |
| <i>Primary Program Declared</i> | | 92 | 2 | 94 |
| <i>Secondary Program Declared</i> | | 20 | 0 | 20 |
| Total Declared | | 112 | 2 | 114 |
| Data Science | | USA | International | Total |
| <i>Primary Program Declared</i> | | 58 | 2 | 60 |
| <i>Secondary Program Declared</i> | | 14 | 0 | 14 |
| Total Declared | | 72 | 2 | 74 |
| Additional Undergraduate | | USA | International | Total |
| <i>Statistics Minors Declared</i> | | 29 | 0 | 29 |

Requirements for a Bachelor's Degree

The College of Liberal Arts and Sciences awards Bachelor of Arts (BA), Bachelor of Science (BS), Bachelor of Fine Arts (BFA), and Bachelor of Music (BM) degrees.

To earn a Bachelor's Degree, you must:

- Complete a minimum of **120** semester hours of credit towards graduation
- Satisfy the UI and CLAS residence requirement
- Complete the requirements of the General Education Program
- Complete a major
- Meet the College's academic standards

NOTE: Effective with spring 2019 registration for summer and fall 2019, all CLAS students must have a major declared by the time the student has earned 60 semester hours. In other words, a student who has earned 60 s.h. but does not have a major declared will not be able to register for summer or fall 2019.



Actuarial Science Faculty



Dr. Elias Shiu

Professor and Collegiate Fellow
Office: 362 Schaeffer Hall
PhD, California Institute of
Technology, 1975
Principal Financial Group Professor
of Actuarial Science
Research Interests:
Asset/Liability Management,
Mathematical Finance, Risk Theory
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Dr. N.D. Shyamalkumar

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Dr. Zhiwei (Josh) Tong

Assistant Professor
Office: 374 Schaeffer Hall
PhD School of Risk and Actuarial
Studies at UNSW Sydney, August
2021
Research Interests: credit portfolio
losses, financial networks and
systemic risk, and insurance under
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Distinguished History – Promising Future

The University of Iowa has the second oldest actuarial science program in the U.S.A. It began with the course “The Mathematical Theory of Insurance,” taught by Dr. Westfall, in academic year 1902/1903. Since 1913, actuarial science courses have been taught every year at UI. Five past presidents of the Society of Actuaries and two past presidents of the Casualty Actuarial Society were UI students.



In 2016 Remin University of China sponsored the *Gerber-Shiu Workshop in honor of Dr. Shiu*.

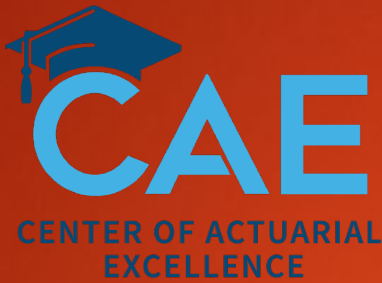


SOCIETY OF ACTUARIES

| FOUNDATIONS | ACTUARIAL I | ACTUARIAL II | ADVANCED | PROFESSIONALISM |
|---|---|---|---|---|
| EXAM FINANCIAL MATHEMATICS | EXAM FUNDAMENTALS OF ACTUARIAL MATHEMATICS | EXAM ADVANCED LONG-TERM ACTUARIAL MATHEMATICS OR ADVANCED SHORT-TERM ACTUARIAL MATHEMATICS | e-LEARNING FUNDAMENTALS OF ACTUARIAL PRACTICE | SEMINAR ASSOCIATESHIP PROFESSIONALISM COURSE |
| EXAM PROBABILITY | VEE MATHEMATICAL STATISTICS | EXAM PREDICTIVE ANALYTICS | e-LEARNING ADVANCED TOPICS IN PREDICTIVE ANALYTICS | |
| VEE ECONOMICS | EXAM STATISTICS FOR RISK MODELING | | | |
| VEE ACCOUNTING AND FINANCE | e-LEARNING ACTUARIAL SCIENCE FOUNDATIONS | | | |
| e-LEARNING PRE-ACTUARIAL FOUNDATIONS | | | | |

Risk is Opportunity





| CURRENT | NEW |
|-----------------------------------|--|
| VEE Economics | VEE Economics |
| VEE Accounting and Finance | VEE Accounting and Finance |
| VEE Mathematical Statistics | VEE Mathematical Statistics |
| Exam P – 3 hours MC* | Exam P – 3 hours MC |
| Exam FM – 3 hours MC | Exam FM – 3 hours MC |
| Exam IFM – 3 hours MC | Exam removed |
| Exam LTAM – 4.25 hours MC and WA* | Exam FAM – 3.5 hours MC |
| Exam STAM – 3.5 hours MC | Exam ALTAM or ASTAM – 2.5-3.0 hours WA |
| Exam SRM – 3.5 hours MC | Exam SRM – 3.5 hours MC |
| Exam PA – 5.25 hours WA | Exam PA – 5.25 hours WA |
| n/a | Exam ATPA – TH* |
| n/a | Pre-Actuarial Foundations e-Learning Module – TH |
| n/a | Actuarial Science Foundations e-Learning Module – TH |
| FAP – eight TH assessments | FAP – five TH assessments |
| APC – Seminar | APC – Seminar |

*MC = multiple choice WA = proctored written-answer TH = take home written-answer

Required Courses for Actuarial Science Major

- 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:4150 Fundamentals of Short-term Actuarial Mathematics (3 s.h.)
- ACTS:4180 Life Contingencies I (3 s.h.)
- ACTS:4280 Life Contingencies II (3 s.h.)

The University of Iowa

University-Earned Credit Courses Exam Course(s)

- FM (Financial Mathematics) ACTS:3080
- FAM (Fundamentals of Actuarial Mathematics) ACTS:4130, 4150
- SRM (Statistics for Risk Modeling) STAT:4560, 4561
- ALTAM (Advanced Long-Term Actuarial Mathematics) ACTS:4280

Sample Schedule for a student who needs to start from Calculus I.

| Year | Fall Semester | Spring Semester |
|------|--|--|
| 1 | MATH:1850 Calculus I CS:1210 Computer Science I: Fundamentals ACTS:1001 Introductory Seminar Actuarial Science | MATH:1860 Calculus II MATH:2700 Introduction to Linear Algebra Mathematical Statistics II ACTS:3080 Mathematics of Finance I (or wait until 2 nd year) |
| 2 | MATH:2850 Calculus III STAT:3100 Introduction to Mathematical Statistics I | MATH:3770 Fundamental Properties of Spaces and Functions I STAT:3101 Introduction to Mathematical Statistics II ACTS:3080 Mathematics of Finance I |
| 3 | STAT:4100 Mathematical Statistics I ACTS:4130 Quantitative Methods for Actuaries FIN:3300 Corporate Finance | STAT:4101 Mathematical Statistics II ACTS:4180 Life Contingencies I ACTS:4380 Mathematics of Finance II |
| 4 | ACTS:4280 Life Contingencies II STAT:4560 Statistics for Risk Modeling | ACTS:6200 Predictive Analytics STAT:4561 Statistics for Risk Modeling II |

Sample Schedule for a student who needs to start from Calculus II.

| Year | Fall Semester | Spring Semester |
|------|---|---|
| 1 | MATH:1860 Calculus II CS:1210 Computer Science I: Fundamentals ACTS:1001 Introductory Seminar Actuarial Science STAT:3100 Introduction to Mathematical Statistics (or wait until 2 nd year) | MATH:2850 Calculus III ACTS:3080 Mathematics of Finance I ACTS:3080 Mathematics of Finance I |
| 2 | MATH:2700 Introduction to Linear Algebra STAT:3100 Introduction to Mathematical Statistics I | MATH:3770 Fundamental Properties of Spaces and Functions I STAT:3101 Introduction to Mathematical Statistics II |
| 3 | STAT:4100 Mathematical Statistics I ACTS:4130 Quantitative Methods for Actuaries FIN:3300 Corporate Finance | STAT:4101 Mathematical Statistics II ACTS:4180 Life Contingencies I ACTS:4150 Fundamentals of Short-term Actuarial Math |
| 4 | ACTS:4280 Life Contingencies II STAT:4560 Statistics for Risk Modeling | ACTS:6200 Predictive Analytics STAT:4561 Statistics for Risk Modeling II |

SOA Examinations & UI Courses

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| SOA Examinations | UI Courses |
|--|---------------------------------------|
| Probability (P) | STAT:3100 and/or 4100; ACTS:3110 |
| Financial Mathematics (FM) | ACTS:3080 |
| Fundamentals of Short-Term Actuarial Mathematics (FAM-S) | STAT:4101 or 5101; ACTS:4150 |
| Fundamentals of Long-Term Actuarial Mathematics (FAM-L) & Advanced Long-Term Actuarial Mathematics (ALTAM) | ACTS:4130, 4180 & 4280; STAT:4101 |
| Statistics for Risk Modeling (SRM) | STAT:4560, 4561,4101 |
| Predictive Analytics (PA) which is about computer applications of the theory in SRM. | ACTS:6200 |
| VEE | UI Courses |
| Economics | ECON:1100, 1200 or ECON:3100, 3150 |
| Accounting & Corporate Finance | ACCT:2100, FIN:3000 or 3300 |
| Mathematical Statistics | STAT:3101 or STAT:4101 or 5101 |

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

Charles A. Spoerl, *Transactions of the Society of Actuaries*,
Volume 1 (1949)

Terry Lillis, (MS 1982)

CFO, Principal Financial (retired), Des Moines, Iowa



Eric Palmer, (BS 1988)
President and CEO,
EVERNORTH, Cigna
Company in Ellington,
Connecticut

Great to have former alumni visit with our students!

We have amazing student leadership on campus.

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2024 Actuarial Science Club Board

If you're a student (undergraduate or graduate student) who is majoring in Actuarial Science and/or Actuarial Science Interest, you are automatically a member of the Actuarial Science Club! All students are added to our mailing list that students share information about social and educational activities.

- President: Sam Reckamp
- VP of Finance: Maggie Russ
- VP of Media: Emily Davis
- VP of Social Programming: Nate Reed
- VP of Alumni Relations: Kael Christensen
- Underclassman Ambassador: Tyler Dill

Annual Job Fair!

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Forty companies to come to our 2023 Actuarial Science, Risk Management & Analytics Job Fair in October 2023. Our students are encouraged to attend this fair to learn more about the opportunities these fine companies offer. In the days and weeks that follow many will have follow-up interviews seeking internship and job opportunities. We are so appreciative to the wonderful support and organization by our Pomerantz Career Center Team to make this such as successful event! Our next job fair is in September, 2024.



This is just a snapshot of our graduates!

Actuarial Science Graduates

| Students | Majors, Minors and Certificate Programs | Initial Placement |
|--------------------|--|---|
| Cody Borst | Actuarial Science and Mathematics | Transamerica, Cedar Rapids, IA |
| Erich Byers | Actuarial Science and Mathematics | Transamerica, Cedar Rapids, IA |
| Clarisse Chia | Actuarial Science and Mathematics | Pursuing MS at the University of Iowa |
| Michelle Croghan | Actuarial Science, Mathematics, Statistics, Business Administration (Minor) | Athene, West Des Moines, IA |
| Justin Dickinson | Ancient Civilization (Minor), (H) Actuarial Science, Mathematics and Statistics | Ernst & Young, Chicago, IL |
| Jiashuo Du | Actuarial Science and Mathematics (Minor) | Graduate Program in Finance at UI, Iowa City, IA |
| Nathan Halko | Actuarial Science and Mathematics | Global Atlantic Financial Group, Des Moines, IA |
| Leah Klejch | Actuarial Science, Mathematics, and Business Administration (Minor) | Willis, Towers and Watson, Chicago, IL |
| Jason McDowell | Actuarial Science and Computer Science | Berkshire Hathaway Homestate Companies, Omaha, NE |
| Max Peterson | (H) *** Actuarial Science, *** Mathematics and Risk Management and Insurance (Certificate) | Allstate Insurance, Chicago, IL |
| Meng Qi | Actuarial Science, Mathematics and Statistics | Fidelity Investments, Chicago, IL |
| Jonathan Reinhart | (H) Actuarial Science, Computer Science and Mathematics (Minor) | Blue Cross & Blue Shield, Chicago, IL |
| Jacob Schmitt | (H) Actuarial Science, and Mathematics | Principal, Des Moines, IA |
| Yaodong Shen | Actuarial Science and Mathematics | Graduate Program in Applied Business Analytics, Boston University |
| Andrew Sherer | Actuarial Science and Certificate in Risk Management and Insurance | Transamerica, Cedar Rapids, IA |
| Connor Vandersnick | Actuarial Science and Mathematics (Minor) | Global Atlantic, New York City |

This is just a snapshot of our internships!

| Internships | | |
|--------------------|---|----------------------|
| Name | Company | Location |
| Collin Abeln | Global Atlantic Financial Group | New York, NY |
| Carter Burns | Transamerica | Cedar Rapids |
| Alec Ciaccio | Transamerica | Cedar Rapids |
| Ashton Cracraft | Transamerica | Cedar Rapids |
| Kiersten Dey | The Hartford | Hartford, CT |
| Angela Fiore | Athene | Des Moines, IA |
| Nicole Gonner | Transamerica | Denver |
| Sean Godkin | Reinsurance Group of America | St Louis |
| Matthew Kulczak | Allianz | Munich, Germany |
| Tina Liu | Pacific Life | Newport Beach, CA |
| Ivan Morales | Country Financial | Bloomington, IL |
| Mason Newhard | Transamerica | Iowa City |
| Morgan Novak | Global Atlantic Financial Group | Des Moines, IA |
| Nick Odegaard | Global Atlantic Financial Group | Des Moines |
| Nathan Promes | Athene | Des Moines |
| Rachel Rinehart | Athene | Des Moines |
| Mitch Tamashunas | Prudential Financial | Newark, NJ |
| Simeon Taylor | Southern Farm Bureau Life Insurance Company | Jackson, Mississippi |
| Sam Werner | Cigna | Denver, CO |

Scholarships & Awards

Charles Wilson (BA, 1941) attended The University of Iowa during the Depression only because of a scholarship. He was an actuary for 45 years. He established this fund because he wanted to give future students the same opportunity he had and to help the actuarial profession.

Over \$350,000 has been awarded to over 50 deserving students based upon academic merit for 2023-24.

The department has additional scholarship and awards: Lloyd Knowler Scholarship, Principal Financial Group Foundation Scholarship, Harold W. Schloss Memorial Scholarship, D. W. Simpson & Company Scholarship, Peterson, Patterson and the Transamerica Scholarship.

In addition, students may receive a Taylor Award in Academic Performance. We also often nominate students for the Society of Actuaries Diversity, Huntington and Actuary of Tomorrow awards.

Career Placement



<https://careers.uiowa.edu/post-grad-data#employment-report>

Below is the list of employers that came to our annual **Actuarial Science, Insurance and Risk Management Career Fair** on October 12, 2023

Allianz Life
American Equity Investment Life Insurance Company
Aon
Assurance, a Marsh & McLennan Agency
Athene USA
BITCO Insurance Companies
Captive Resources, LLC
Cottingham & Butler
Country Financial
Emergent Holdings
F&G Annuities & Life
Farm Bureau Financial Services
Fidelity Investments
Gallagher
Global Atlantic Financial Group
Holmes Murphy & Associates
IMT Insurance
Kunkel & Associates, Inc.
Lockton
National Indemnity Company
New York Life Insurance Company
Northwestern Mutual - Eastern Iowa
Old Republic International
Pacific Life
Principal Financial Group- Corporate Headquarters
Sammons Financial Group
Sentry
The Accel Group

Transamerica
Travelers
TruStage
UFG Insurance
W. R Berkley

"The insurance industry is a central driver of Iowa's economy, and plays a key role in the economic well-being of Iowans. Our insurance companies employ more than 60,000 Iowans, providing high-quality jobs across numerous sectors, including healthcare, life, property and casualty, and financial services. As the study shows, the insurance industry represents 11% of our GDP, cementing Iowa as a national insurance leader."

-Governor Kim Reynolds