

# IOWA

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## Department of Statistics & Actuarial Science

*The University of Iowa is home to over 31,452 students. In the fall of 2023, there were 22,130 undergraduate students enrolled in the College of Liberal Arts. Currently, our department has 289 undergraduate students who have declared majors in actuarial science, actuarial science interest, data science and/or statistics.*





*Due to the demanding nature of the Actuarial Science major and the difficulty of the professional examinations, the department maintains a selective admission program for Actuarial Science. **Students must apply and be admitted to the major.***

Students interested in becoming actuaries should **declare** an Interest in Actuarial Science as their major when they enter the university.

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

Students who **declare an Actuarial Science Interest** major are advised by the Academic Advising Center located in the Pomerantz Center. Students who have declared an interest in the major, prior to admission, are included in all departmental activities.

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 2023

UI Official Count  
Day: 09/05/2023

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Graduate Students		USA	International	Total
<i>Total Number in Graduate Program</i>		<b>30</b>	<b>38</b>	<b>68</b>
PhD	USA		International	Total
1st Year	0	5	5	
Continuing Students	3	5	8	
Total	3	10	13	
MS Statistics	USA		International	Total
1st Year	2	3	5	
Continuing Students	3	6	9	
Total	5	9	14	
MS Actuarial Science	USA		International	Total
1st Year	1	1	2	
Continuing Students	3	5	8	
Total	4	6	10	
MS Data Science	USA		International	Total
1st Year	2	10	12	
Continuing Students	3	2	5	
Total	5	12	17	
BS/MS U2G Data Science	USA		International	Total
1st Year	10	0	10	
Continuing Students	3	0	3	
Total	13	0	13	
BS/MS U2G Statistics (Nankai)	USA		International	Total
1st Year	0	1	1	
Continuing Students	0	0	0	
Total	0	1	1	
Undergraduate Students				
<i>Total Number in Undergraduate Program Declared</i>		USA	International	Total
Total Number		<b>281</b>	<b>8</b>	<b>289</b>
Statistics	USA		International	
<i>Primary Program Declared</i>	44	3	47	
<i>Secondary Program Declared</i>	25	2	27	
Total Declared	69	5	74	
Actuarial Science	USA		International	Total
<i>Primary Program Declared</i>	31	0	31	
<i>Secondary Program Declared</i>	2	0	2	
Total Declared	33	0	33	
Actuarial Science Interest	USA		International	Total
<i>Primary Program Declared</i>	59	0	59	
<i>Secondary Program Declared</i>	22	0	22	
Total Declared	81	0	81	
Data Science	USA		International	Total
<i>Primary Program Declared</i>	55	3	58	
<i>Secondary Program Declared</i>	15	0	15	
Total Declared	70	3	73	
Additional Undergraduate	USA		International	Total
<i>Statistics Minors Declared</i>	28	0	28	

# 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  
[http://www.stat.uiowa.edu/~eshiu/  
elias-shiu@uiowa.edu](http://www.stat.uiowa.edu/~eshiu/elias-shiu@uiowa.edu)  
Phone: (319) 335-2580

## Dr. N.D. Shyamalkumar

*Associate Professor*  
Office: 208 Schaeffer Hall  
PhD, Purdue University, 1996  
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Research Interests:  
Actuarial Science  
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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  
information asymmetry  
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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
<b>EXAM</b> FINANCIAL MATHEMATICS	<b>EXAM</b> FUNDAMENTALS OF ACTUARIAL MATHEMATICS	<b>EXAM</b> ADVANCED LONG-TERM ACTUARIAL MATHEMATICS OR ADVANCED SHORT-TERM ACTUARIAL MATHEMATICS	<b>e-LEARNING</b> FUNDAMENTALS OF ACTUARIAL PRACTICE	<b>SEMINAR</b> ASSOCIATESHIP PROFESSIONALISM COURSE
<b>EXAM</b> PROBABILITY	<b>VEE</b> MATHEMATICAL STATISTICS			
<b>VEE</b> ECONOMICS		<b>EXAM</b> PREDICTIVE ANALYTICS	<b>e-LEARNING</b> ADVANCED TOPICS IN PREDICTIVE ANALYTICS	
<b>VEE</b> ACCOUNTING AND FINANCE	<b>EXAM</b> STATISTICS FOR RISK MODELING			
<b>e-LEARNING</b> PRE-ACTUARIAL FOUNDATIONS	<b>e-LEARNING</b> ACTUARIAL SCIENCE FOUNDATIONS			

***Risk is  
Opportunity***





CENTER OF ACTUARIAL  
EXCELLENCE

UEC

UNIVERSITY-EARNED  
CREDIT



SOCIETY OF ACTUARIES®

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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	<b>Exam removed</b>
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 <sup>nd</sup> 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 <sup>nd</sup> 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 <b>(P)</b>	STAT:3100 and/or 4100; ACTS:3110
Financial Mathematics <b>(FM)</b>	ACTS:3080
Fundamentals of Short-Term Actuarial Mathematics <b>(FAM-S)</b>	STAT:4101 or 5101; ACTS:4150
Fundamentals of Long-Term Actuarial Mathematics <b>(FAM-L)</b> & Advanced Long-Term Actuarial Mathematics <b>(ALTAM)</b>	ACTS:4130, 4180 & 4280; STAT:4101
Statistics for Risk Modeling <b>(SRM)</b>	STAT:4560, 4561, 4101
Predictive Analytics <b>(PA)</b> 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.***

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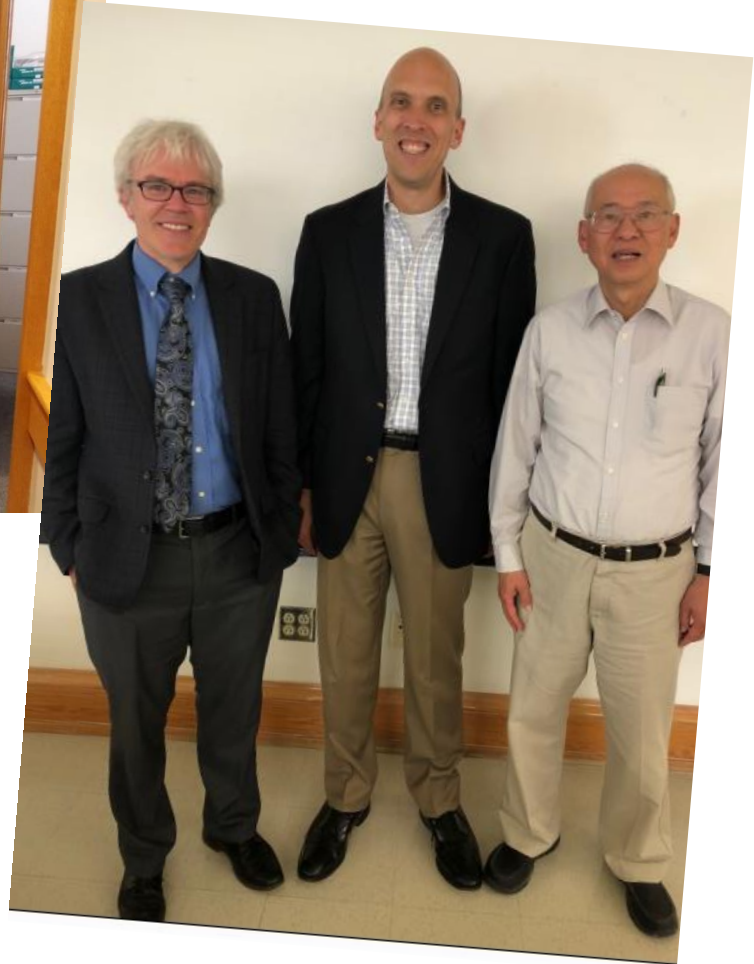
Charles A. Spoerl, *Transactions of the Society of Actuaries*,  
Volume 1 (1949)

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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## 2023 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! The club has a ICON (Iowa Courses Online) site and a Facebook page: (<https://www.facebook.com/groups/163654807082416/>)

and students are added to our mailing list (that the department sends out) that students share information.

Picture front row: Aliyah, Emma, Yalei; back row: Brice, Liam, Sam, Nathan

President: Liam Christensen

VP of Finance: Sam Reckamp

VP of Media: Brice Sandahl

VP of Social Programming: Nathan Reed

VP of Alumni: Aliyah Johnson

International Student Ambassador: Yalei Zhao

Underclassmen Ambassador: Emma Kajtazovic



# 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!



*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!*

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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**