Department of Statistics & Actuarial Science

The University of Iowa is home to over 31,656 students. In the Fall of 2018, the College of Liberal Arts had 23,989 students enrolled. For 2018 Fall semester we have 130 undergraduate students declared Actuarial Science or Actuarial Science Interest, 126 majoring in Statistics and 9 students in our new major- Data Science.
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.
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.
Faculty teach all of our courses at the University of Iowa.

# Actuarial Science Faculty

## Dr. Ambrose Lo

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**Fellow, Society of Actuaries**  
**Chartered Enterprise Risk Analyst**  
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Academic web page: [https://sites.google.com/site/ambroseloyo](https://sites.google.com/site/ambroseloyo)

## Dr. Elias Shiu

**Professor**  
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PhD, California Institute of Technology, 1975  
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[http://www.stat.uiowa.edu/~eshiu/](http://www.stat.uiowa.edu/~eshiu/)  
Phone: (319) 335-2580

## Dr. N.D. Shyamalkumar

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Research Interests: Actuarial Science  
[http://www.stat.uiowa.edu/~ns](http://www.stat.uiowa.edu/~ns)

## Dr. Michelle Larson

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**Associate, Society of Actuaries**  
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## Dr. Qihe Tang

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Phone: (319) 335-0730  
Office: 360 Schaeffer Hall  
Research Interests: Extreme Value Theory in Insurance, Finance and Quantitative Risk Management  
[http://www.stat.uiowa.edu/~qtang/](http://www.stat.uiowa.edu/~qtang/)
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.
THE CAS PATH TO SUCCESS

In principle and in practice, the CAS is the gold standard for the property and casualty actuarial profession. With 100 years of experience and expertise, the CAS continues to focus on comprehensive exams and education that are uniquely relevant to property and casualty actuaries. Our CAS credentialing program is the program of choice for attracting top candidates and meeting employers' needs.

EXAM 1* Probability
EXAM 2* Financial Mathematics
Validation by Educational Experience (VEE)
  • Corporate Finance
  • Economics
  • Typically completed while in school
EXAM 3F* Models for Financial Economics

ONLINE COURSES
  • Risk Mgmt. & Insurance Ops.
  • Insurance Accounting, Coverage Analysis, Insurance Law & Insurance Regulation
EXAM 4* Construction & Evaluation of Actuarial Models

EXAM 5 Basic Techniques for Ratemaking and Estimating Claim Liabilities
EXAM 6 Regulation & Financial Reporting (Nation-Specific)

COURSE ON PROFESSIONALISM
CONGRATS You have Completed the Foundational Requirements!

EXAM 7 Estimation of Policy Liabilities, Insurance Co. Valuation, & ERM

CONGRATS You have Achieved the ACAS Credential

EXAM 9 Financial Risk & Rate of Return
EXAM 8 Advanced Ratemaking

CONGRATS You have Achieved the FCAS Credential!

* The CAS will honor credits from candidates who pass examinations offered by other organizations that cover our CAS learning objectives for CAS Exams 1, 2, 3F, and 4 as well as the VEEs. These organizations include but are not limited to: Society of Actuaries, Canadian Institute of Actuaries, Institute and Faculty of Actuaries (UK), Actuaries Institute (Australia), Actuarial Society of South Africa, and Institute of Actuaries of India. For example, requirements for CAS Exams 1, 2, 3F and 4 can be fulfilled by passing the Society of Actuaries’ Exams P, FM, MFE, and C, respectively.
Pathway to Membership

Risk is Opportunity
MFE, MLC and C will change to IFM, LTAM, STAM and the new exam requirement of SRM and PA will be begin in July, 2018!

**Society of Actuaries Exams, July 2018**

- **Exam P**: Probability
- **Exam FM**: Financial Mathematics
- **Exam MFE**: Now: Investment & Financial Markets
- **Exam IFM**: Now: Long-Term Actuarial Mathematics
- **Exam MLC**: Now: Short-Term Actuarial Mathematics
- **Exam C**: New– Statistics for Risk Modeling
- **Exam STAM**: New– Predictive Analytics
- **Exam SRM**
- **NEW PA**: New Pathway

Old Pathway

New Pathway
# Sample Schedule

<table>
<thead>
<tr>
<th>Year</th>
<th>Fall Semester</th>
<th>Spring Semester</th>
</tr>
</thead>
</table>
| 1    | MATH:1850 Calculus I  
CS:1210 Computer Science I: Fundamentals  
ECON:1100 Principles of Microeconomics | MATH:1860 Calculus II  
MATH:2700 Introduction to Linear Algebra  
ECON:1200 Principles of Macroeconomics |
| 2    | MATH:2850 Calculus III  
STAT:3100 Introduction to Mathematical Statistics I (Exam P)  
ACTS:3110 Actuarial Preparation for Exam P | MATH:3770 Fundamental Properties of Spaces and Functions I  
STAT:3101 Introduction to Mathematical Statistics II  
ACTS:3080 Mathematics of Finance I (Exam FM)  
ACTS:3210 Actuarial Preparation for Exam FM |
| 3    | STAT:4100 Mathematical Statistics I (Exam P)  
ACTS:4130 Quantitative Methods for Actuaries (Exam LTAM) | FIN:3300 Corporate Finance (Exam IFM)  
STAT:4101 Mathematical Statistics II (VEE)  
ACTS:4180 Life Contingencies I (Exam LTAM) |
| 4    | ACTS:4280 Life Contingencies II (Exam LTAM)  
STAT:4540 Statistical Learning  
STAT:4560 Statistical for Risk Modeling (Exam SRM) | ACTS:4380 Mathematics of Finance II (Exam IFM)  
ACTS:6480 Loss Distributions (Exam STAM)  
ACTS:6580 Credibility and Survival Analysis (Exam STAM) |

*Recommended not required for B.S.*
## UI Courses and Examinations

### SOA Examinations

<table>
<thead>
<tr>
<th>SOA Examinations</th>
<th>UI Courses</th>
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</thead>
<tbody>
<tr>
<td>P Probability</td>
<td>STAT:3100, 4100</td>
</tr>
<tr>
<td>FM Financial Mathematics</td>
<td>ACTS:3080</td>
</tr>
<tr>
<td>IFM Investment &amp; Financial Markets</td>
<td>ACTS:4380, FIN:3300</td>
</tr>
<tr>
<td>LTAM Long-Term Actuarial Mathematics</td>
<td>ACTS:4130, 4180, 4280</td>
</tr>
<tr>
<td>STAM Short-Term Actuarial Mathematics</td>
<td>STAT:4101, ACTS:6480, 6580</td>
</tr>
<tr>
<td>SRM Statistics for Risk Modeling</td>
<td>STAT:4540, 4560</td>
</tr>
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</table>

### VEE

<table>
<thead>
<tr>
<th>VEE</th>
<th>UI Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economics</td>
<td>ECON:1100, 1200 or ECON:3100, 3150</td>
</tr>
<tr>
<td>Accounting &amp; Corporate Finance</td>
<td>ACCT:2100, FIN:3000 or 3300</td>
</tr>
<tr>
<td>Mathematical Statistics</td>
<td>STAT:3101 or STAT:4101 or 5101</td>
</tr>
</tbody>
</table>
In the forefront of actuarial folklore stands the belief that the actuarial examinations constitute a mystery impenetrable by mortal man.

Terry Lillis, (MS 1982)
CFO, Principal Financial, Des Moines, Iowa

Eric Palmer, (BS 1988)
CFO, CIGNA
Bloomfield, Connecticut

Great to have former alumni visit with our students! In 2018 we had the Past President of the SOA and countless business leaders meet with our students.
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.
2018 Job Fair!

This year 31 companies came to our 2018 Actuarial Science, Insurance and Risk Management Job Fair which was held on September 20. Over 110 students attended this fair to learn more about the opportunities these fine companies offer. In the days and weeks ahead 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!

### 2017-18 Actuarial Science Graduates

<table>
<thead>
<tr>
<th>Students</th>
<th>Majors, Minors and Certificate Programs</th>
<th>Initial Placement</th>
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</thead>
<tbody>
<tr>
<td>Cody Borst</td>
<td>Actuarial Science and Mathematics</td>
<td>Transamerica, Cedar Rapids, IA</td>
</tr>
<tr>
<td>Erich Byers</td>
<td>Actuarial Science and Mathematics</td>
<td>Transamerica, Cedar Rapids, IA</td>
</tr>
<tr>
<td>Clarisse Chia</td>
<td>Actuarial Science and Mathematics</td>
<td>Pursuing MS at the University of Iowa</td>
</tr>
<tr>
<td>Michelle Croghan</td>
<td>Actuarial Science, Mathematics, Statistics, Business Administration (Minor)</td>
<td>Athene, West Des Moines, IA</td>
</tr>
<tr>
<td>Justin Dickinson</td>
<td>Ancient Civilization (Minor), (H) Actuarial Science, Mathematics and Statistics</td>
<td>Ernst &amp; Young, Chicago, IL</td>
</tr>
<tr>
<td>Jiashuo Du</td>
<td>Actuarial Science and Mathematics (Minor)</td>
<td>Graduate Program in Finance at UI, Iowa City, IA</td>
</tr>
<tr>
<td>Nathan Halko</td>
<td>Actuarial Science and Mathematics</td>
<td>Global Atlantic Financial Group, Des Moines, IA</td>
</tr>
<tr>
<td>Leah Klejch</td>
<td>Actuarial Science, Mathematics, and Business Administration (Minor)</td>
<td>Willis, Towers and Watson, Chicago, IL</td>
</tr>
<tr>
<td>Jason McDowell</td>
<td>Actuarial Science and Computer Science</td>
<td>Berkshire Hathaway Homestate Companies, Omaha, NE</td>
</tr>
<tr>
<td>Max Peterson</td>
<td>(H) Actuarial Science, *** Mathematics and Risk Management and Insurance (Certificate)</td>
<td>Allstate Insurance, Chicago, IL</td>
</tr>
<tr>
<td>Meng Qi</td>
<td>Actuarial Science, Mathematics and Statistics</td>
<td>Fidelity Investments, Chicago, IL</td>
</tr>
<tr>
<td>Jonathan Reinhart</td>
<td>(H) Actuarial Science, Computer Science and Mathematics (Minor)</td>
<td>Blue Cross &amp; Blue Shield, Chicago, IL</td>
</tr>
<tr>
<td>Jacob Schmitt</td>
<td>(H) Actuarial Science, and Mathematics</td>
<td>Principal, Des Moines, IA</td>
</tr>
<tr>
<td>Yaodong Shen</td>
<td>Actuarial Science and Mathematics</td>
<td>Graduate Program in Applied Business Analytics, Boston University</td>
</tr>
<tr>
<td>Andrew Sherer</td>
<td>Actuarial Science and Certificate in Risk Management and Insurance</td>
<td>Transamerica, Cedar Rapids, IA</td>
</tr>
<tr>
<td>Connor Vandersnick</td>
<td>Actuarial Science and Mathematics (Minor)</td>
<td>Global Atlantic, New York City</td>
</tr>
<tr>
<td>Name</td>
<td>Company</td>
<td>Location</td>
</tr>
<tr>
<td>------------------</td>
<td>----------------------------------------------</td>
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</tr>
<tr>
<td>Collin Abeln</td>
<td>Global Atlantic Financial Group</td>
<td>New York, NY</td>
</tr>
<tr>
<td>Carter Burns</td>
<td>Transamerica</td>
<td>Cedar Rapids</td>
</tr>
<tr>
<td>Alec Ciaccio</td>
<td>Transamerica</td>
<td>Cedar Rapids</td>
</tr>
<tr>
<td>Ashton Cracraft</td>
<td>Transamerica</td>
<td>Cedar Rapids</td>
</tr>
<tr>
<td>Kiersten Dey</td>
<td>The Hartford</td>
<td>Hartford, CT</td>
</tr>
<tr>
<td>Angela Fiore</td>
<td>Athene</td>
<td>Des Moines, IA</td>
</tr>
<tr>
<td>Nicole Gonner</td>
<td>Transamerica</td>
<td>Denver</td>
</tr>
<tr>
<td>Sean Godkin</td>
<td>Reinsurance Group of America</td>
<td>St Louis</td>
</tr>
<tr>
<td>Matthew Kulczak</td>
<td>Allianz</td>
<td>Munich, Germany</td>
</tr>
<tr>
<td>Tina Liu</td>
<td>Pacific Life</td>
<td>Newport Beach, CA</td>
</tr>
<tr>
<td>Ivan Morales</td>
<td>Country Financial</td>
<td>Bloomington, IL</td>
</tr>
<tr>
<td>Mason Newhard</td>
<td>Transamerica</td>
<td>Iowa City</td>
</tr>
<tr>
<td>Morgan Novak</td>
<td>Global Atlantic Financial Group</td>
<td>Des Moines, IA</td>
</tr>
<tr>
<td>Nick Odegaard</td>
<td>Global Atlantic Financial Group</td>
<td>Des Moines</td>
</tr>
<tr>
<td>Nathan Promes</td>
<td>Athene</td>
<td>Des Moines</td>
</tr>
<tr>
<td>Rachel Rinehart</td>
<td>Athene</td>
<td>Des Moines</td>
</tr>
<tr>
<td>Mitch Tamashunas</td>
<td>Prudential Financial</td>
<td>Newark, NJ</td>
</tr>
<tr>
<td>Simeon Taylor</td>
<td>Southern Farm Bureau Life Insurance Company</td>
<td>Jackson, Mississippi</td>
</tr>
<tr>
<td>Sam Werner</td>
<td>Cigna</td>
<td>Denver, CO</td>
</tr>
</tbody>
</table>
The prestigious scholarship that many of our undergraduate students receive is called the Charles E. and Eleanore G. Wilson Scholarship.

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 $300,000 has been awarded to 35 deserving students based upon academic merit for 2018-19. This includes 7 promising 1st year students and 28 upper-class students.

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. Additionally 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.