IOWA

Department of Statistics and Actuarial Science

Undergrad to Graduate (U2G) in Statistics or Actuarial Science

NKU BS DEGREE + UIOWA MS DEGREE in 5 YEARS COMBINED STUDY

March 4, 2021

IOWA

Welcome to the Department of Statistics and Actuarial Science!

Department Chair: Kung-Sik Chan, kung-sik-chan@uiowa.edu
Director of Graduate Studies: Aixin Tan, aixin-tan@uiowa.edu
Undergraduate Faculty Advisor for Statistics & Data Science: Rhonda DeCook, rhonda-decook@uiowa.edu
Undergraduate Faculty Advisor for Actuarial Science: Elias Shiu, elias-shiu@uiowa.edu
Graduate Advisor for Actuarial Science: N. D. Shyamalkumar, shyamal-kumar@uiowa.edu
Faculty Liaison with Nankai University: Boxiang Wang, boxiang-wang@uiowa.edu

Department email: statistics@uiowa.edu or actuarial-science@uiowa.edu

MS in Statistics or Actuarial Science:

The Master of Science in Statistics

- 32 s.h. of graduate credit.
- Prepares students for careers as professional statisticians, or for entry into PhD programs.
- Build a solid foundation in mathematical statistics, statistical computing, and statistical modeling. Flexible choice of electives. Small class sizes. Work closely with renowned faculty on projects.

The Master of Science program in Actuarial Science

- 36 s.h. of graduate credit.
- Prepares students for actuarial careers by emphasizing the theory that underlies risk processes and the application of this theory to practical problems of insurance pricing and management.
- Helps students learn materials for professional examinations administered by professional organizations such as the Society of Actuaries and the Casualty Actuarial Society.

Key Terms:

- Years 1-3 are spent at Nankai University (NKU) engaged exclusively in undergraduate study.
- Year 4 is spent in residence at the University of Iowa; students register in graduate student classification.
- Year 5 is spent in residence at the University of Iowa; student is registered in graduate student classification and is completing the graduate degree.

The Department of Statistics and Actuarial Science, University of Iowa

Distinguished History:

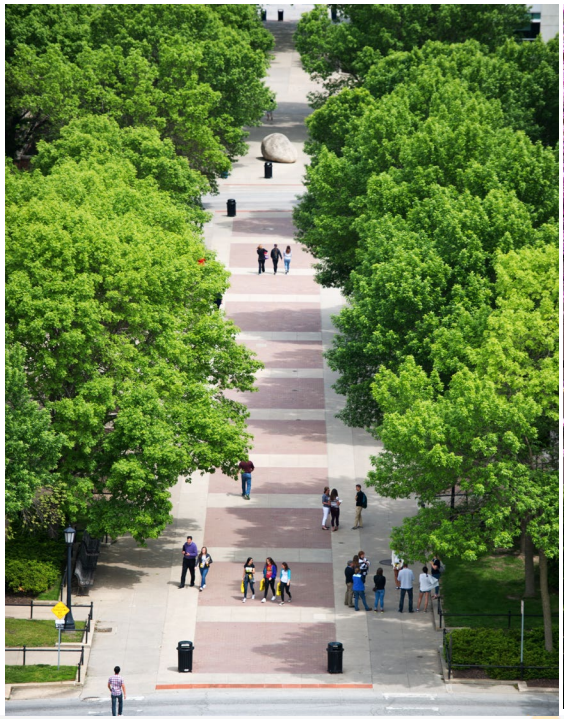
Henry Rietz (First President of Institute of Mathematical Statistics)
Sam Wilks, Allen Craig,
Lloyd Knowler (A founder of the American Society of Quality Control),
Robert Hogg (President of American Statistical Association), and many more.

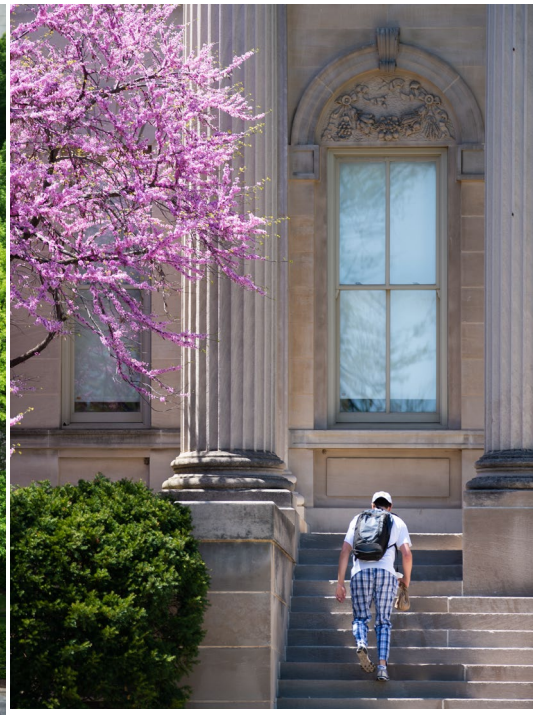
Current Faculty:

Dedicated teachers, renowned researchers
Statistics: **6+2 ASA Fellows, 2 IMS Fellows.**
Actuarial Science: **1 Fellow** and **2 Associates** of the **Society of Actuaries**.

Bright Future: for us to make together

https://stat.uiowa.edu/people
https://stat.uiowa.edu/about/about-department





The University of Iowa

- Virtual tour of our scenery campus: https://uiowa.edu
- Modern recreational and fitness facilities
- The department of Statistics and Actuarial Science is housed in Schaeffer Hall, adjacent to the Old Capitol, a national historic landmark and the symbolic center of campus.

Iowa City, Iowa

- Iowa City is a town in Iowa with a population of 75,000.
- Living in Iowa City offers residents an urban suburban mix and feel.
- Lots of restaurants, coffee shops, and parks.
- #4 Best Place to Live by *Livability*
- #1 Best College Town in the Nation by *Reviews.org*
- Cedar Rapids Airport is conveniently located 37 km away and Chicago O'Hare Airport is a 3.5 hour drive to the east.

Student Eligibility Considerations

- Eligible NKU students will be **within 6 semester hours of completing their BS** and/or may have yet to complete their BS thesis.
- Statistics students may apply to the "**Master of Science in Statistics**" program.
- Math students may apply to the "**Master of Science in Actuarial Science**" program.
- **Deadline to apply is March 15, 2021** for the fall semester.
- NKU students must receive the BS from NKU prior to the start of year five and, upon successful completion of all courses and degree requirements, would earn their MS at the end of the 5th year of combined study.

Application Requirements

NKU will delegate representatives to select students of good academic standing. Students nominated from NKU to participate will be subject to the following requirements.

A. Have completed three years of study in the School of Mathematical Sciences or the School of Statistics and Data Science at NKU.

B. Have achieved an average of 85% or greater (equivalent of an “A-” or 3.25 or better on a US 4-point grading scale) in their first three years of study at NKU.

C. Have achieved an average of at least 75% in all Mathematics and Applied Mathematics courses or all Statistics and Data Science courses (equivalent of a “B” or 3.0 or better on a US 4-point grading scale) taken in the first three years of study at NKU.

Application Requirements (continued)

D. Have enough English language skills to complete UI's academic program, generally **a minimum TOEFL score of 85** (Internet-based); **IELTS 7** overall with no subscore less than 6.

E. Meet all requirements for admission as international students, as described at: https://grad.admissions.uiowa.edu/future-students/international-students and satisfaction of all criteria for admission to the UI's Graduate College, as described at: https://grad.admissions.uiowa.edu/academics/statistics-ms-or-phdhttps://grad.admissions.uiowa.edu/academics/actuarial-science-ms

F. Pay fee for application to the UI Department of Admissions.

Application Requirements (continued)

G. The UI reserves the right of final admission approval. The names of students approved for admission to the program by the UI's Department of Statistics and Actuarial Science will be forwarded to the UI's international admissions coordinator. The department's Director of Graduate Studies (DGS) will direct approved students to complete an online application for admission and enter a final decision when all requirements are fulfilled. **Students with TOEFL scores less than 100 (Internet-based) or an IELTS score of less than 8** must satisfy the English proficiency requirements as listed in: https://clas.uiowa.edu/esl/esl-credit-classes/english-proficiency-requirement.

H. Completion of the GRE exam is required before students begin their fifth year. Students will be admitted **conditionally until the GRE exam is completed**. Completion of the GRE is grounds for the student to progress from conditional to regular admission status

Estimated Cost of Program:

- 2021-22 Non-Resident Tuition & Fees- $30,612
- Books- $650
- Living Expenses- $15,404
- Total- $46,666

MS in Statistics

> Solid training
> Modernized curriculum
> Work closely w/ faculty

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> Modernized curriculum
> Small class sizes
> Work closely w/ faculty

In STAT:6990, students complete a creative component related to their application and career interests. Students will choose a faculty member as their mentor.

Required core courses:
STAT:5090 Alpha Seminar
STAT:5100 STAT:5101 Statistical Inference I & II
STAT:5200 STAT:5201 Applied Statistics I & II
STAT:5400 Computing in Statistics
STAT:6220 Statistical Consulting
STAT:6300 Probability and Stochastic Processes I
STAT:6990 Readings in Statistics

At least 3 electives from:
STAT:4520 Bayesian Statistics
STAT:4540 Statistical Learning
STAT:4540 Data Visualization and Data Technologies
STAT:5120 Mathematical Methods for Statistics
STAT:6301 Probability and Stochastic Processes II
STAT:6530 Environmental and Spatial Statistics
STAT:6547 Nonparametric Statistical Methods
STAT:6560 Applied Time Series Analysis
STAT:6970 Topics in Statistics

Or a PhD-level course, for example,
STAT:7400 Computer Intensive Statistics
STAT:7500 Statistical Machine Learning

Getting your MS degree in Statistics

- Required Courses
- Creative Component
- MS final exam
  - Covers year 4 courses
  - Offered in August, 2022. Chance to make up in January 2023.

https://stat.uiowa.edu/ms-statistics

MS in Actuarial Science

> Solid training and Internship Opportunities
> Company Presentations
> Active Actuarial Science Student Run Club

Actuarial Science Program

The University of Iowa (UI) has the second oldest Actuarial Science program in the U.S.A. Over 600 Fellows of the Society of Actuaries (FSA) are UI graduates. In 2009 the Society of Actuaries (SOA) established the “Center of Actuarial Excellence” designation; UI was among the first group of universities granted this honor.

Five past presidents of the SOA and two past presidents of the Casualty Actuarial Society were UI students. Four Presidential Awards were given by the SOA in 2017; three of the four award recipients graduated from UI. Currently, two members of the SOA Board of Directors are UI graduates.

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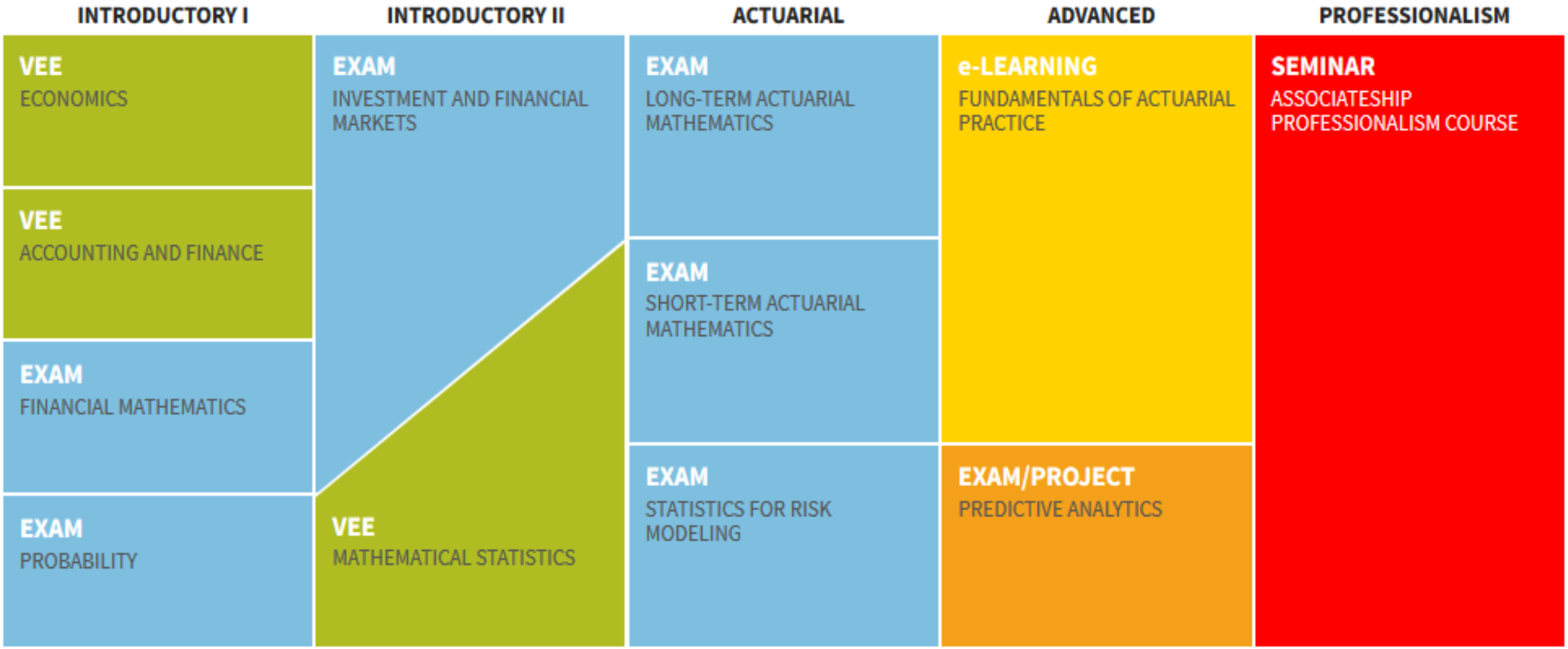
Actuarial Science Alumni in China Today

Many UI alumni held or hold senior positions in Chinese insurance companies and consulting firms. Below are some of them. The titles listed may not be current.

- Duanhong (Daniel) Lin (MS 2000), Chief Actuary of Taiping Life
- Shu-Yen Liu (MS 1983), Partner of PwC Asia
- Jingsu Pu (MS 2000), Member of the Board of Directors, MetLife Investment Asia Limited
- Shirley Shao (MS 1979), Chief Actuary of China Life
- Ling-Ling Wang (MS 1988), Deputy Chief Actuary of Ping An Insurance (Group)
- Yuanhan (John) Zhang (MS 1998), Principal & Chief Actuary of China Pacific Insurance Group

UI's MS program in Actuarial Science provides courses for the first three columns of SOA's requirements



Actuarial Science Courses

- STAT:4100 Mathematical Statistics I (3 s.h.) or STAT:5100 Statistical Inference
- STAT:4101 Mathematical Statistics II (3 s.h.) or STAT:5101 Statistical Inference II
- ACTS:3080 Mathematics of Finance I (3 s.h.)
- ACTS:4130 Quantitative Methods for Actuaries (3 s.h.)
- ACTS:4180 Life Contingencies I (3 s.h.)
- ACTS:4280 Life Contingencies II (3 s.h.)
- ACTS:4380 Mathematics of Finance II (3 s.h.)
- ACTS:6160 Topics in Actuarial Science
- ACTS:6480 Loss Distributions
- ACTS:6580 Credibility and Survival Analysis
- STAT:4560 Statistics for Risk Modeling
- Approved Elective

PhD in Statistics at the University of Iowa

Choose from four concentration areas:

actuarial science/financial mathematics
biostatistics
data science
probability/mathematical statistics

PhD in Statistics

- Requires a minimum of 76 s.h. of graduate credit, including work completed for the MS degree.
- PhD students complete required course work, including four courses in one of four concentration areas: **actuarial science/financial mathematics, biostatistics, data science, or probability/mathematical statistics.** They may take course work or seminars in other departments to relate an area of specialization to other fields of knowledge.
- More details of the PhD program: https://stat.uiowa.edu/graduate-programs/phd-statistics-0
- Recent PhD graduates: https://stat.uiowa.edu/recent-phd-graduates

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