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Department of Statistics and Actuarial Science

Graduate Programs in Statistics & Actuarial Science

Graudate programs:

MS in Statistics   MS in Acturial Science   MS in Data Science

PhD Stat (includes Act. Sci track and more)

Aug 2025

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Welcome to the Department of Statistics and Actuarial Science!

Director of Graduate Studies: Boxiang Wang: boxiang-wang@uiowa.edu

Department emails:
statistics@uiowa.edu, actuarial-science@uiowa.edu, data-science@uiowa.edu

The 50th Annual Hogg-Craig Lecture

The 2-day festival was successfully organized in 2023 April.

The speaker is U Iowa Alumni,
Dr. Dan Nettleton,
Chair of the Statistics Dept. at Iowa State U.

2024 Fall

Department new student orientation

The Department of Statistics and Actuarial Science, University of Iowa

Distinguished History:

Henry Rietz (First President of Institute of Mathematical Statistics)

Sam Wilks (Wilk's Theorem, Editor of the Annals, IMS)

Allen Craig (first secretary/treasurer of IMS**)**

Lloyd Knowler (A founder of the American Society of Quality Control)

Robert Hogg (President of American Statistical Association, famous textbook author)

and many more.

Current Faculty:

Dedicated teachers, renowned researchers

4 ASA Fellows, 3 IMS Fellows.

Research interests: Bayesian Methods, Causal Inference, Computational Statistics, Deep Learning, Genomics, High-dimensional Statistics, Large Language Models, Machine Learning, Spatial and Environmental Statistics, Time Series Analysis; Mathematical Finance, Risk Measurements and so on.

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

The Department of Statistics and Actuarial Science, University of Iowa

Graduate Education:

Small class sizes: **10~30** for most courses, taught by renowned researchers who are also dedicated teachers.

New graduate students each year (before U2G): **10~20** (2/3 in Stat)

Terminal MS awarded each year: **5~15; others move on to PhD.**

PhD awarded each year: **3~7**
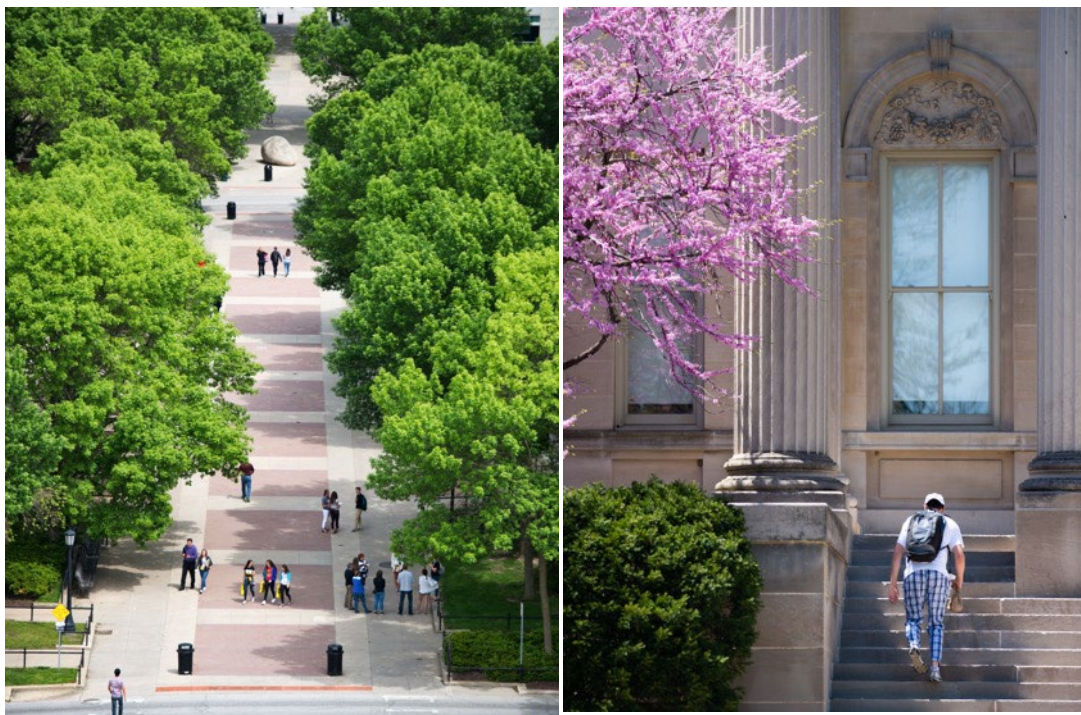
Alumni

Recent PhD graduates: https://stat.uiowa.edu/recent-phd-graduates

* **Assistant Professors** @ Nanjing U, Chinese U of HK, …

* **Postdocs** @ Yale, Harvard, …

* **Statisticians and Data Scientists**

@ Amazon, Google, Meta,

Expedia, Discover, Liberty Mutual Insurance,
Eli Lilly, FDA, Novartis, Dow Chemical,…

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 located 37km away and Chicago O'Hare Airport is a 3.5 hour drive to the east.

MS in Statistics

> Solid training
> State-of-the-art curriculum
> Work closely with faculty

MS Statistics

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> **Solid training**
> **State-of-the-art curriculum**
> **Work closely with faculty**

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

https://stat.uiowa.edu/graduate/ms-statistics#courses

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

At least 3 electives from:
STAT:4520 Bayesian Statistics
STAT:4540 Statistical Learning
STAT:4580 Data Visualization and Data Technologies
STAT:4750 Probabilistic Statistics Learning
STAT:5120 Mathematical Methods for Statistics
STAT:6530 Environmental and Spatial Statistics
STAT:6560 Applied Time Series Analysis
STAT:6970 Topics in Statistics
STAT:6990 Readings in Statistics
STAT:7200 Linear Model
STAT:7400 Computer Intensive Statistics

Summary: Getting your MS degree in Statistics

- Required Courses
- MS final exam
  - Covers first year courses
  - Offered in Aug., chance to make up the following Jan.

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

MS in Data Science

> Solid training
> State-of-the-art curriculum
> Data science practicum

MS Data Science

> **Solid training**
> **State-of-the-art curriculum**
> **Data Science Practicum**

Core courses (besides basic math stat and regression):

DATA:3120 Probability and Statistics
DATA:3200 Applied Linear Regression
DATA:4540 Statistical Learning
DATA:4580 Data Visualization and Data Technologies
DATA:4600 Causal Inferences for Data Science
DATA:4750 Probabilistic Statistical Learning
DATA:5890 Practicum (Internship, or Bootcamps+Datathon)
STAT:5400 Computing in Statistics
STAT:6220 Consulting and Communication with Data
STAT:7400 Computer Intensive Statistics

https://stat.uiowa.edu/graduate/ms-data-science#courses

MS in Actuarial Science

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

INTRODUCTORY I	INTRODUCTORY II	ACTUARIAL	ADVANCED	PROFESSIONALISM
VEE ECONOMICS	**EXAM** INVESTMENT AND FINANCIAL MARKETS	**EXAM** LONG-TERM ACTUARIAL MATHEMATICS	**e-LEARNING** FUNDAMENTALS OF ACTUARIAL PRACTICE	**SEMINAR** ASSOCIATESHIP PROFESSIONALISM COURSE
VEE ACCOUNTING AND FINANCE		**EXAM** SHORT-TERM ACTUARIAL MATHEMATICS		
EXAM FINANCIAL MATHEMATICS				
EXAM PROBABILITY	**VEE** MATHEMATICAL STATISTICS	**EXAM** STATISTICS FOR RISK MODELING	**EXAM/PROJECT** PREDICTIVE ANALYTICS	

Actuarial Science

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

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Actuarial Science

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

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PhD in Statistics

PhD qualifying procedure

- **Statistics** — The faculty evaluates the student's body of work and assesses the student's potential for research.
  - the MS final exam in statistics
  - a project with a faculty mentor (STAT:6990)
  - course work.

- **Actuarial Science** — see webpage for details.

Completing the PhD program (~5 years)

- No Written PhD comprehensive exam, start research projects early

- Prospectus (serves as the PhD comprehensive exam)
  - written and oral report, literature review, proposed work, and preliminary results
  - within 12 or 18 months of admission to the PhD program

- Writing and defending a dissertation
  - within 24 months of passing the prospectus

PhD timeline

→ **Year 1.**   ~6 courses, including 5 needed for MS final exam

   Pass the MS final exam

→ **Year 2.**   ~6 courses including 1+ at PhD level

   STAT:6990 project with mentor (often becomes dissertation advisor)

→ **Year 3.**   Identify dissertation advisor, PhD committee and topic. Prospectus.

→ **Year 4~5.** Complete all course requirements

   Complete and defend the dissertation

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