



Actuarial Science



Career Overview

Actuarial science has been rated among the top career paths in the nation by media outlets including *The Wall Street Journal*, *Forbes*, and *CNN*. The Actuarial Science major at Smeal prepares students for careers in insurance, consulting, finance, and government agencies that demand quantitative and qualitative skills.

Actuaries are vital to the insurance industry, calculating the costs of life or health insurance, or how much an insurance company can expect to pay in claims due to natural disasters, car accidents, and other situations.

Employment Prospects

Smeal Actuarial Science students are highly sought by industry and government for internships and full-time jobs. Due to the size of the Smeal Actuarial Science program, Penn State hosts one of the largest actuarial career fairs in the country with more than 30 companies visiting campus each year.

Major Overview

The Actuarial Science major provides background in the wide range of knowledge needed to be an actuary including calculus, probability and statistics, financial and actuarial mathematics, economics, finance, risk management, pensions, and insurance. Math is

a critical part of this major.

Smeal offers the courses needed to satisfy the professional Verification by Educational Experience (VEE) requirements and courses designed to help you pass the preliminary professional examinations in the Society of Actuaries (SOA) or Casualty Actuarial Society (CAS), which one needs to be an actuary. Employers often provide support to help students pass the remaining exams after graduation.

Preparing to Enroll in the Major

Enrollment in the Actuarial Science major is contingent upon several criteria, which include the timing and completion of a specified range of cumulative credits at Penn State. Students apply for the major once they have earned a minimum of 36 but no more than 59 cumulative credits. These credits include required business foundation and related courses. In addition to the course and credit window requirements, students must attain an overall competitive GPA in all courses.

Fast Facts

- Actuary has consistently been rated near the top of *The Wall Street Journal*'s best jobs.
- The average starting salary for Penn State actuarial science majors is \$77,325, while the average across all Smeal majors is \$63,668.
- Recruiters prefer Smeal more than any other school according to a *Wall Street Journal* survey.
- Some Penn State students pass as many as five actuarial exams before graduation.
- Penn State is designated as a "Center of Actuarial Excellence" by the Society of Actuaries.
- Courses taken by our students include Probability Theory (P Exam), Financial Mathematics (FM Exam), Actuarial Mathematics (FAM Exam), and Statistics for Risk Modeling (SRM Exam).



Actuarial Science

Actuarial Science Major Requirements

A grade of C or higher is required in all major courses.

Prescribed ACTSC Courses

(27 credits)

MATH 141 (4): Calculus with Analytic Geometry II

MATH 231 (2): Calculus of Several Variables

MATH (STAT) 414 (3): Introduction to Probability Theory

MATH (STAT) 415 (3): Introduction to Mathematical Statistics

RM 320W (3): Risk Management and Insurance

RM 410 (3): Financial Mathematics for Actuaries

RM 411 (3): Actuarial Mathematics I

RM 421 (3): Short Term Actuarial Mathematics - Fundamentals

RM 430 (3): Life and Health Insurance

ACTSC Electives

(6 credits) Select one course from each category:

Category One

RM 412 (3): Actuarial Mathematics II

RM 422 (3): Short Term Actuarial Mathematics - Adv. Topics

Category Two

STAT 380: Data Science Through Statistical Reasoning and Computation

STAT 462 (3): Applied Regression Analysis

STAT 483 (3): Statistical Programming in SAS

Employment Statistics

- Average Starting Salary: **\$77,325**
- Average Signing Bonus: **\$7,389**
- Average Internship Wage: **\$24.63/hour**

Employment By Industry

- Financial Services and Insurance: **65%**
- Consulting Services: **24%**
- Pharma/Biotech/Health: **3%**
- Other: **8%**

Top Full-Time Companies

- AON Hewitt
- Deloitte
- Prudential
- Highmark
- Willis Towers Watson

Top Internship Companies

- Cigna
- Highmark
- Prudential
- Aetna/CVS Health
- Transamerica

Contact Information

Mandy Hammell, FSA

Professor of Practice

ajw102@psu.edu

814-865-4153

Zhongyi Yuan, ASA

Associate Professor

zuy11@psu.edu

814-865-6211

Nan Zhu, FSA

Associate Professor

nxz24@psu.edu

814-863-8666

Penn State Smeal College of Business

Risk Management Department

355 Business Building

University Park, PA 16802

rm@smeal.psu.edu

814-865-4172