

## Select Actuarial Math courses

### **MATH 2790 Mathematics of Interest Theory.**

This 3 semester-hour course serves as an introduction to the elements of the theory of interest which plays a central role in the financial aspects of actuarial science. Topics covered are: compound interest, annuities, varying annuities, amortization and sinking funds, yield rates and bond valuation, duration, convexity, and immunization.

The following two courses prepare students for the examination on the Mathematics of Finance and Probability, respectively, by means of extensive review and the taking of practice examinations.

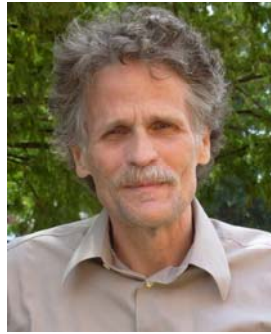
**MATH 4790 Actuarial Seminar in the Mathematics of Finance.** Topics are the same as in MATH 2790 with the focus on developing in-depth understanding of the concepts and facility in using them.

### **MATH 4820 Actuarial Seminar in Probability.**

Topics covered are: Basic probability rules. Univariate probability distributions, moments, median, mode percentiles, transformations. Central Limit Theorem, joint, conditional, and marginal distributions, covariance, conditional means and variance. Losses and loss distributions, claim payments or benefits as a function of losses (deductible, benefit limits, etc.) and their distributions, expected values, variances, inflationary effects, mixed discrete-continuous cases.

**MATH 5800/6800 and MATH 5810/6810 Actuarial Mathematics 1 and 2.** This two semester sequence of courses prepares students for the examination on Actuarial Models: Life Contingencies. Topics include survival distributions for single and joint lives, actuarial present value of an income stream, computation of insurance premiums and insurance reserves, multiple causes of decrement, Markov chain and Brownian motion models in the insurance context, valuation of financial instruments, and the problem of insurance company solvency.

## Actuarial Faculty



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More details are available at  
<http://www.auburn.edu/cosam/departments/math/actu/>

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Auburn University

Department of  
Mathematics and  
Statistics

Actuarial  
Science  
Program

## What is an Actuary?

Actuaries bring a complex future into focus by applying unique insight to risk and opportunity. Known for their comprehensive approach, actuaries enable smart, more confident decisions.

### Benefits

Actuarial jobs have high earning potential. Here is a sample of actuarial salaries in Property and Casualty based on the number of exams passed and years of experience (from D.W. Simpson & Company web-site, October 2009):

	0-0.5 yrs	0.5-2.5 yrs	2.5-4.5 yrs
1 exam	48-65	51-66	55-72
2 exams	51-68	55-72	60-77
3 exams	53-70	57-77	66-84

### Where do actuaries manage risk?

At this time, the majority of actuaries work in careers that are associated with the insurance industry, though growing numbers work in other fields. They are heavily involved in insurance because that is society's most powerful answer for managing risk. We reduce our risk of financial loss by transferring it to an insurance company that accepts the risk for a price (which is the insurance premium). Actuaries play a key role in designing insurance plans, determining the premium, monitoring the profitability of insurance companies, and recommending corrective action when appropriate. Actuaries working in insurance companies also ensure that insurance companies have set aside enough funds to pay claims and provide advice on how to invest the insurance companies' assets.

Actuaries work in all sectors of the economy, though they are more heavily represented in the financial services sector, including insurance companies, commercial banks, investment banks and retirement funds. They are employed by corporations as well as by the state and federal government. Many work for consulting firms. Some are self-employed, enjoying financially rewarding careers that also come with the great flexibility of being one's own boss.

### Actuarial Mathematics at Auburn

The Actuarial Science program within the Department of Mathematics and Statistics at Auburn University offers a well-balanced curriculum in applied mathematics with advanced preparation for the actuarial profession. It boasts a dedicated group of faculty experienced in passing actuarial exams offered by the professional societies and recognized by the insurance industry. Auburn University is accredited by the Society of Actuaries to offer courses that satisfy the Validation by Education Experience (VEE) requirements in Applied Statistical Methods, Corporate Finance, and Economics. Many successful Auburn graduates of the Actuarial Science program find employment locally in Birmingham, Montgomery, Columbus, and Atlanta. More jobs are also available in the Northeast and in the Midwest.

### Employers of Actuaries

- Insurance companies
- Consulting firms
- Government insurance departments
- Banks and investment firms
- Large corporations
- Public accounting firms
- Colleges and universities

### Needed Skills

- Mathematics
- Analytical and problem solving skills
- Interest in financial and business applications
- Computer proficiency
- Solid communications skills

### Actuarial Exams

Actuaries in the U.S. and Canada achieve professional status by passing a set of examinations prescribed by the Casualty Actuarial Society (CAS) or the Society of Actuaries (SOA). Many prospective actuaries begin taking exams while in college and Auburn University offers courses with syllabi that closely match those for exams P/1, FM/2, and MLC/3 as well as two seminars designed specifically to prepare students to take exams P/1 and FM/2. According to research conducted by the SOA in the past few years, the recognition of actuarial credentials was very high among employers in insurance, reinsurance, and consulting markets.