

# ACTUARIAL SCIENCE (ACSCI)

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## Courses primarily for undergraduates:

### **ACSCI 3910: Actuarial Exam P Lab**

Credits: 1. Contact Hours: Lecture 1.

Repeatable.

*Prereq:* STAT 3260 or STAT 3410

Material review for actuarial exam P. Offered on a satisfactory-fail basis only. (Typically Offered: Fall, Spring)

### **ACSCI 3920: Actuarial Exam FM Lab**

Credits: 1. Contact Hours: Lecture 1.

Repeatable.

*Prereq:* MATH 2400

Material review for actuarial exam FM. Offered on a satisfactory-fail basis only. (Typically Offered: Fall, Spring)

### **ACSCI 4010: Loss Models I**

Credits: 3. Contact Hours: Lecture 3.

*Prereq:* STAT 3410

Probability distributions used to model uncertain events in actuarial practice. Aggregate models, evaluating the effect of various coverage modifications such as deductibles and limits. Construction of empirical models, calculations of common risk measures, and calculations of commonly used severity and frequency models. Various methods for estimating distributional parameters and their properties. (Typically Offered: Fall)

### **ACSCI 4020: Credibility Theory**

Credits: 3. Contact Hours: Lecture 3.

*Prereq:* ACSCI 4010

Method of moments and percentile matching. The method of maximum likelihood estimation for complete individual data, grouped data, censored and truncated data, and variance estimation. Bayesian estimation, including conjugate priors, posterior distributions, and the Poisson-gamma model. Credibility theory, including limited fluctuation credibility, applying Bayesian analysis for both discrete and continuous models, Buhlmann and Buhlmann-Straub models, and their relationship to Bayesian models. Simulating discrete and continuous random variables and the bootstrap method for estimating mean squared error. (Typically Offered: Spring)