

# ACTUARIAL SCIENCE (ACSCI)

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**Any experimental courses offered by ACSCI can be found at:**

[registrar.iastate.edu/faculty-staff/courses/explistsings/](http://registrar.iastate.edu/faculty-staff/courses/explistsings/) (<http://www.registrar.iastate.edu/faculty-staff/courses/explistsings/>)

**Courses primarily for undergraduates:**

## **ACSCI 401: Loss Models I**

(3-0) Cr. 3.

*Prereq: STAT 341*

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.

## **ACSCI 402: Credibility Theory**

(3-0) Cr. 3.

*Prereq: ACSCI 401*

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.