UW-Madison Actuarial Program Courses

Course (Credit Hours)	Description	Prerequisites	Corresponding Actuarial Exams (SOA = Society of Actuaries, CAS = Casualty Actuarial Society)
Act Sci 303 (3 credits)	Theory and applications pertaining to the time value of money (financial mathematics). **Text:** *A Basic Course in the Theory of Interest and Derivatives Markets: A Preparation for the Actuarial Exam FM/2 - Marcel B. Finan*	Must have completed the second semester calculus course on series and sums	• SOA Financial Mathematics (FM) Exam • CAS Exam 2: Financial Mathematics
Act Sci 640 (4 credits)	Introduction to statistical learning theory and methods for analyzing and modeling risks in actuarial applications. **Text:** Regression Modeling with Actuarial and Financial Applications – Edward W (Jed) Frees - Cambridge **Text:** An Introduction to Statistical Learning with Applications in R, Second Edition – James, Witten, Hastie, Tibshirani - Springer	Must have completed a statistics class	• SOA Statistics for Risk Modeling (SRM) Exam • Portion of CAS Exam MAS-I: Modern Actuarial Statistics I • Portion of CAS Exam MAS-II: Modern Actuarial Statistics II
Act Sci 650 (3 credits)	First course covering the foundations of long-term insurance. **Text:** *Actuarial Mathematics for Life Contingent Risks, Third Edition (2020), by Dickson, Hardy, and Waters*	Must have completed both probability and interest theory classes	• SOA Fundamentals of Actuarial Mathematics (FAM) Exam • Portion of CAS Exam MAS-I: Modern Actuarial Statistics I
Act Sci 652 (3 credits)	First course covering the foundations of short-term insurance (loss data analytics). **Text:** *Loss Data Analytics*	Completed or currently taking a statistics class	• SOA Fundamentals of Actuarial Mathematics (FAM) Exam • Portion of CAS Exam MAS-I: Modern Actuarial Statistics I