

**The University of Iowa**  
**College of Liberal Arts and Sciences**  
**Department of Statistics and Actuarial Science**  
**ACTS:6160 (22S:171) Topics in Actuarial Science**  
**2:30 - 3:20 PM MWF 14 SH** **Fall Semester 2016**

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Office Hours: 3:30–5 PM Monday and Wednesday, or by appointment

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Prerequisites: C+ or better in 22S:181 (ACTS:3180) and 22S:183 (ACTS:4380)

Recommended textbooks:

R.L. McDonald (2013) *Derivatives Markets*, 3<sup>rd</sup> edition, Pearson.

H.H. Panjer (editor) (1998) *Financial Economics: With Applications to Investments, Insurance, and Pensions*. The Actuarial Foundation. This was a textbook for the old SOA Exam 6.

Various journal papers will be distributed later.

Topics:

Fundamental Theorem of Asset Pricing

Method of Esscher Transforms

Risk-Neutral and Martingale Pricing

Pricing Compound Options and Multi-Asset Options

American Options; Closed-Form Formulas for the Perpetual Case

Barrier Options and Their Use in Modeling Policy Lapses and Surrenders

Interest Rate Risk Management, Redington's Theory of Immunization and its Generalization

Applications to Insurance/Annuity Products: SPDAs, Variable Annuities, Equity-Indexed Annuities, Fair Value of Liabilities, Reserving Issues

There will be two Friday evening midterm exams given in 112 MH (Macbride Hall) on October 14 and November 18, 6:30 to 8:30 pm. You are to use an official SOA calculator.

Tentatively, the final grade (H.W. 10% + Exams 25% + 25% + 40%) will be assigned as follows:

C–[59.5, 64); C[64, 68.5); C+[68.5, 73); B–[73, 77.5); B[77.5, 82); B+[82, 86.5); A–[86.5, 91); A[91, 95.5); A+[95.5, 100]

## Administrative Home

The College of Liberal Arts and Sciences is the administrative home of this course and governs matters such as the add/drop deadlines, the second-grade-only option, and other related issues. Different colleges may have different policies. Questions may be addressed to 120 Schaeffer Hall, or see the CLAS Academic Policies Handbook at <http://clas.uiowa.edu/students/handbook>.

## Electronic Communication

University policy specifies that students are responsible for all official correspondences sent to their University of Iowa e-mail address (@uiowa.edu). Faculty and students should use this account for correspondences ([Operations Manual, III.15.2](#), k.11).

## Accommodations for Disabilities

The University of Iowa is committed to providing an educational experience that is accessible to all students. A student may request academic accommodations for a disability (which includes but is not limited to mental health, attention, learning, vision, and physical or health-related conditions). A student seeking academic accommodations should first register with Student Disability Services and then meet with the course instructor privately in the instructor's office to make particular arrangements. Reasonable accommodations are established through an interactive process between the student, instructor, and SDS. See <http://sds.studentlife.uiowa.edu/> for information.

## Academic Honesty

All CLAS students or students taking classes offered by CLAS have, in essence, agreed to the College's [Code of Academic Honesty](#): "I pledge to do my own academic work and to excel to the best of my abilities, upholding the [IOWA Challenge](#). I promise not to lie about my academic work, to cheat, or to steal the words or ideas of others; nor will I help fellow students to violate the Code of Academic Honesty." Any student committing academic misconduct is reported to the College and placed on disciplinary probation or may be suspended or expelled ([CLAS Academic Policies Handbook](#)).

## CLAS Final Examination Policies

The final examination schedule for each class is announced by the Registrar generally by the fifth week of classes. Final exams are offered only during the official final examination period. **No exams of any kind are allowed during the last week of classes.** All students should plan on being at the UI through the final examination period. Once the Registrar has announced the date, time, and location of each final exam, the complete schedule will be published on the Registrar's web site and will be shared with instructors and students. It is the student's responsibility to know the date, time, and place of a final exam.

## Making a Suggestion or a Complaint

Students with a suggestion or complaint should first visit with the instructor (and the course supervisor), and then with the departmental DEO. Complaints must be made within six months of the incident ([CLAS Academic Policies Handbook](#)).