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   150 SH   Fall Semester 2019

Instructor: Dr. E.S.W. Shiu   Office: 362 SH   Phone: 335 2580   E-mail: elias-shiu@uiowa.edu   
Office Hours: 3:30 to 4:30 Monday; 2:30 to 3:30 Tuesday and Thursday; or by appointment  
Department: Statistics & Actuarial Science, 241 SH   Phone: 335 2082  
D.E.O.: Dr. Kung-Sik Chan   Phone: 335 0712   E-mail: kung-sik-chan@uiowa.edu  
Prerequisites: C+ or better in 22S:181 (ACTS:4180) and 22S:183 (ACTS:4380)

Various journal papers will be distributed later. The following are useful references.  

Topics will be chosen from:  
 Fundamental Theorem of Asset Pricing  
 Method of Esscher Transforms  
 Risk-Neutral (Equivalent Martingale Measure) Pricing  
 Pricing Compound Options and Multi-Asset Options  
 Portfolio Theory  
 Asset Pricing Models  
 Brownian Motion and Black-Scholes Equation  
 American Options; Closed-Form Formulas for the Perpetual Case  
 Adjustment Coefficient  
 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, October 11 (Friday) and November 22 (Friday), 6:30 to 8:30 pm in 150 SH. You are to use an official SOA calculator.

Tentatively, the final grade (H.W. 15% + Exams 25% + 25% + 35%) will be assigned as follows: C−[55, 60); C[60, 65); C+[65, 70); B−[70, 75); B[75, 80); B+[80, 85); A−[85, 90); A[90, 95); A+[95, 100]
Absences and Attendance  Students are responsible for attending class and for contributing to the learning environment of a course. Students are also responsible for knowing the absence policies for their courses, which will vary by instructor. All absence policies, however, must uphold the UI policy related to student illness, mandatory religious obligations, unavoidable circumstances, or University authorized activities (https://clas.uiowa.edu/students/handbook/attendance-absences). Students may use this absence form to communicate with instructors: https://clas.uiowa.edu/sites/default/files/ABSENCE%20EXPLANATION%20FORM2019.pdf

Academic Integrity  All undergraduates enrolled in courses offered by CLAS have, in essence, agreed to the College's Code of Academic Honesty. Misconduct is reported to the College, resulting in suspension or other sanctions, with sanctions communicated with the student through the UI email address (https://clas.uiowa.edu/students/handbook/academic-fraud-honor-code).

Accommodations for Disabilities  UI is committed to an educational experience that is accessible to all students. A student may request academic accommodations for a disability (such as mental health, attention, learning, vision, and physical or health-related condition) by registering with Student Disability Services (SDS). The student is then responsible for discussing specific accommodations with the instructor. More information is at https://sds.studentlife.uiowa.edu/

Administrative Home of the Course  The College of Liberal Arts and Sciences (CLAS) is the administrative home of this course and governs its add/drop deadlines, the second-grade-only option, and related policies. Other colleges may have different policies. CLAS policies may be found here: https://clas.uiowa.edu/students/handbook

Communication and the Required Use of UI Email  Students are responsible for official correspondences sent to the UI email address (uiowa.edu) and must use this address for all communication within UI (Operations Manual, III.15.2).

Complaints  Students with a complaint about a course should first visit with the instructor or course supervisor and then with the Chair of the department or program offering the course; students may next bring the issue to CLAS in 120 Schaeffer Hall. For more information, see https://clas.uiowa.edu/students/handbook/student-rights-responsibilities.

Final Examination Policies  The final exam schedule is announced around the fifth week of classes; students are responsible for knowing the date, time, and place of a final exam. Students should not make travel plans until knowing this information. No exams of any kind are allowed the week before finals. Visit https://registrar.uiowa.edu/final-examination-scheduling-policies.

Nondiscrimination in the Classroom  UI is committed to making the classroom a respectful and inclusive space for all people irrespective of their gender, sexual, racial, religious or other identities. Toward this goal, students are invited to optionally share their preferred names and pronouns with their instructors and classmates. The University of Iowa prohibits discrimination and harassment against individuals on the basis of race, class, gender, sexual orientation, national origin, and other identity categories set forth in the University's Human Rights policy. For more information, contact the Office of Equal Opportunity and Diversity (diversity.uiowa.edu).

Sexual Harassment  Sexual harassment subverts the mission of the University and threatens the well-being of students, faculty, and staff. All members of the UI community must uphold the UI mission and contribute to a safe environment that enhances learning. Incidents of sexual harassment must be reported immediately. For assistance, please see https://osmrc.uiowa.edu/