The University of Iowa
College of Liberal Arts and Sciences
Department of Statistics and Actuarial Science
ACTS:4180 Life Contingencies I   Spring Semester 2023
11:30 AM - 12:20 PM   MWF   3083 LIB

Instructor: Dr. E.S.W. Shiu   Office: 362 SH Phone: 319 335 2580 E-mail: elias-shiu@uiowa.edu
Student drop-in hours: 1:45–3:15 PM 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 each of ACTS:3080, ACTS:4130, and STAT:4100 (or STAT:5100). Calculus and probability are used extensively in this course.
CLAS is the home of this course, and CLAS governs the add and drop deadlines, the "second-grade only" option (SGO), academic misconduct policies, and other undergraduate policies and procedures.
This course is based on the syllabi for the two Society of Actuaries (SOA) examinations on Long-Term Actuarial Mathematics: FAM-L and ALTAM. To write Exam FAM held during the first week of March, you will need to register by January 31.
Key topics to be covered are: Net premium, gross premium and modified net premium reserves, Thiele's reserve differential equation, reserve recursion formulas, universal life insurance, multi-life functions, and multiple decrement models.
Two books will be used in this course. Solutions manuals are available for both books.
AM: *Actuarial Mathematics*, 2nd edition, by N. L. Bowers, Jr., H. U. Gerber, J. C. Hickman (U Iowa MS
       1952, PhD 1961), D. A. Jones (U Iowa MS 1956, PhD 1959), and C. J. Nesbitt, published by SOA in
       1997, and reprinted with corrections in 2000.
AMLCR3: *Actuarial Mathematics for Life Contingent Risks*, 3rd edition, by D.C.M. Dickson, M.R. Hardy,
       and H.R. Waters, published by Cambridge University Press in 2020.
Below are some useful references.
- *Life Contingencies*, 2nd edition, by C. W. Jordan, Jr., Society of Actuaries 1967.
- *Life Insurance Mathematics*, 3rd edition, by H. U. Gerber (published by Springer for the Swiss Association of Actuaries). http://link.springer.com/book/10.1007/978-3-662-03460-6
- *Models for Quantifying Risk*, 6th edition, by S.J. Camilli, I. Duncan, and R. L. London, ACTEX Publications, and its *Solutions Manual*.
- *Fundamentals of Actuarial Mathematics*, 3rd edition, by S. D. Promislow, Wiley.
- *Stochastic Models in Life Insurance* by Michael Koller (published by Springer for the European Actuarial Academy). Using a campus connection, you can download the entire book for free http://link.springer.com/book/10.1007/978-3-642-28439-7
- *Introduction to Insurance Mathematics*: *Technical and Financial Features of Risk Transfers* by Annamaria Olivieri and Ermanno Pitacco . You can download it for free https://link.springer.com/book/10.1007/978-3-642-16029-5

There will be three evening (6:30 to 8:30 pm, 106 GILH) midterm exams, January 30 (Monday), March 9 (Thursday) and April 14 (Friday). **You are to use an official SOA calculator**. Tentatively, the final grade (H.W. 7%; Midterm Exams 10%, 25%, 25%; Final Exam 33%) will be assigned as follows:
Undergrads F[0, 40); D−[40, 45); D[45, 50); D+[50, 55); 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]
Graduate students F[0, 46); D−[46, 50.5); D[50.5, 55); D+[55, 59.5); 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]

Note: The pre-requisite for the next course, ACTS:4280, is C+ or better in ACTS:4180.

Academic Honesty and Misconduct
All students in CLAS courses are expected to abide by the CLAS Code of Academic Honesty. Undergraduate academic misconduct must be reported by instructors to CLAS according to these procedures. Graduate academic misconduct must be reported to the Graduate College according to Section F of the Graduate College Manual.

Student Complaints
Students with a complaint about a grade or a related matter should first discuss the situation with the instructor and/or the course supervisor (if applicable), and finally with the Director or Chair of the school, department, or program offering the course.
Undergraduate students should contact CLAS Undergraduate Programs for support when the matter is not resolved at the previous level. Graduate students should contact the CLAS Associate Dean for Graduate Education and Outreach and Engagement when additional support is needed.

Drop Deadline for this Course
You may drop an individual course before the deadline; after this deadline you will need collegiate approval. You can look up the drop deadline for this course here. When you drop a course, a "W" will appear on your transcript. The mark of "W" is a neutral mark that does not affect your GPA. Directions for adding or dropping a course and other registration changes can be found on the Registrar's website. Undergraduate students can find policies on dropping and withdrawing here. Graduate students should adhere to the academic deadlines and policies set by the Graduate College.

Date and Time of the Final Exam
The final examination date and time will be announced by the Registrar generally by the fifth week of classes and it will be announced on the course ICON site once it is known. **Do not plan your end of the semester travel plans until the final exam schedule is made public. It is your responsibility to know the date, time, and place of the final exam.** According to Registrar's final exam policy, students **have a maximum of two weeks after the announced final exam schedule** to request a change if an exam conflict exists or if a student has more than two exams in one day**.**

College of Liberal Arts and Sciences (CLAS) Course Policies
Attendance and Absences
University regulations require that students be allowed to make up examinations which have been missed due to illness or other unavoidable circumstances. Students with mandatory religious obligations or UI authorized activities must discuss their absences with me as soon as possible. Religious obligations must be communicated within the first three weeks of classes.

Exam Policies

Communication: UI Email
Students are responsible for all official correspondences sent to their UI email address (uiowa.edu) and must use this address for any communication with instructors or staff in the UI community.

University Policies
Accommodations for Students with Disabilities
Basic Needs and Support for Students
Classroom Expectations
Exam Make-up Owing to Absence
Free Speech and Expression
Mental Health
Military Service Obligations
Non-discrimination
Religious Holy Days
Sexual Harassment/Misconduct and Supportive Measures
Sharing of Class Recordings