

The University of Iowa
College of Liberal Arts and Sciences
Department of Statistics and Actuarial Science
ACTS:4280 (22S:182) Life Contingencies II Fall Semester 2016
5:00-6:15 PM MTWTh 140 SH

Instructor: Dr. E.S.W. Shiu Office: 362 SH Phone: 335 2580 E-mail: elias-shiu@uiowa.edu
Office Hours: 3:30–5 PM Monday and Wednesday, or by appointment
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Prerequisites: 22S:153 or 22S:193 **and** a grade of C+ or better in 22S:181 (ACTS:4180)

This is an off-cycle course. The drop date is October 5.

This course is based on the syllabus for the professional examination “Models for Life Contingencies (MLC)” given by the Society of Actuaries (SOA).

The **required textbooks** are

- *Actuarial Mathematics for Life Contingent Risks*, 2nd edition, by D. C. M. Dickson, M. R. Hardy, and H. R. Waters (2013) Cambridge University Press. The MLC syllabus is Chapters 1 to 13, excluding Section 11.5.
- *Actuarial Mathematics*, 2nd edition, by N. L. Bowers, H. U. Gerber, J. C. Hickman, D. A. Jones, and C. J. Nesbitt, Society of Actuaries.

Here are some useful references.

- “Notation and Terminology used on Exam MLC (May 9, 2016 version)”
<https://www.soa.org/education/exam-req/edu-exam-m-detail.aspx>
- *Solutions Manual for Actuarial Mathematics for Life Contingent Risks*, 2nd edition, by D. C. M. Dickson, M. R. Hardy, and H. R. Waters, Cambridge University Press.
- *Life Insurance Mathematics*, 3rd edition, by H. U. Gerber, Springer
<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*.

The following two free books can be helpful.

- *Stochastic Models in Life Insurance* by Michael Koller
<http://link.springer.com/book/10.1007/978-3-642-28439-7>
- *Life Insurance Theory: Actuarial Perspectives* by F Etienne De Vylder
<http://link.springer.com/book/10.1007/978-1-4757-2616-9>

There will be three (3) evening exams, September 9 (Friday), October 7 (Friday), and October 26 (Wednesday), in 112 MH (Macbride Hall), 6:30 to 8:30 pm. **You are to use an official SOA**

calculator. Tentatively, the final grade (H.W. 6% + Exams 24% + 35% + 35%) 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]

Notes: (i) SOA's MLC Examination will be given on Friday, October 28, 8:30 am to 12:45 pm.

(ii) The *Actuarial Science, Insurance and Risk Management Job Fair* will be held on

Wednesday, September 28, 1:00 pm to 4:00 pm, Iowa Memorial Union.

ACTS:4280 (22S:182) **H.W. Set 1** Due at the **beginning** of class on Thursday, 8/25/2016

Write legibly. Show your steps. Explain your reasoning. Simplify your answers.

1. *Actuarial Math* by Bowers et al. Exercise 17.7 on page 552. Derive both answers given on page 743.
2. *Actuarial Math* by Bowers et al. Exercise 16.5 on page 530 (no need to give "interpret the equation"). The W symbol is defined at the bottom of page 503.
3. Assume $\mu_{x+t}^n = \mu_{x+t} + \frac{k}{a_{x+t}}$ $\forall t \geq 0$ (n stands for new) and k is a constant. Express the new annuity value, \bar{a}_x^n , in terms of k and the old annuity value \bar{a}_x . (Hint: You know the answer when $\delta = 0$.)

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](#)).

Understanding 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 have a responsibility to uphold this mission and to contribute to a safe environment that enhances learning. Incidents of sexual harassment should be reported immediately. See the UI [Office of the Sexual Misconduct Response Coordinator](#) for assistance, definitions, and the full University policy.

Reacting Safely to Severe Weather

In severe weather, class members should seek appropriate shelter immediately, leaving the classroom if necessary. The class will continue if possible when the event is over. For more information on Hawk Alert and the siren warning system, visit the [Department of Public Safety website](#).