

Spring 2015: ACT SCI 650 — Actuarial Mathematics I

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- Materials for Class
 - Textbook: I am not requiring one particular textbook, but I am strongly recommending you to use one or all of the following textbooks. The Dickson, Hardy, Waters textbook is the recommended one for the SOA MLC exam, while a study note by T. Struppeck relates to the material on the CAS S exam. However the other two textbooks noted below provide alternative explanations of the same material, especially for this first semester. The CAS Study Note is on the course website; the others are on reserve in the Business Library.
 - * **Models for Quantifying Risk, Sixth Edition (2014)**, by Camilli, Duncan, and London.
 - * **Actuarial Mathematics for Life Contingent Risks, Second Edition (2013)**, Chapters 1 - 6, some of 7, by Dickson, Hardy, and Waters.
 - * **Actuarial Mathematics, Second Edition (1997)**, Chapters 3 to 6, by Bowers, Gerber, Jones, Hickman, and Nesbitt.
 - * **Life Contingencies**, by Tom Struppeck for the CAS Exam S
 - TEL Website
 - Your attentive attendance and participation
- Overall Course Goals: My number one goal is for each of you to maximize your learning of the course material. With this goal achieved, I am confident that you will maximize your chances of passing the MLC (or CAS S) exam.
 - Course Knowledge Goals:
 - (i) To translate actuarial symbols into probability statements or related quantities, and vica versa.
 - (ii) To apply the relevant mortality table to the appropriate situation.
 - (iii) To apply the present value concept to calculate premiums.
 - (iv) To discuss differences between life insurance and annuities in terms of their market potential, market penetration, and their regulation.
 - (v) To discuss and quantify the impact of the choice of life tables.
 - Course Doing Goals:
 - (i) To construct life tables from first principles.
 - (ii) To develop your critical thinking to solve problems: to learn to reason rather than to memorize.
 - (iii) To interpret results for reasonableness.
 - (iv) To apply theory with examples and problems, both in class and as assignments, to link the theory with real-life applications.
 - (v) To provide the opportunity to use computers in solving problems.
 - (vi) To develop your initiative in seeking what you do not understand, either with your research or you asking questions.
 - (vii) To build a sense of camaraderie in and out of the classroom.
 - Course Being Goals:
 - (i) Being responsible to do homework and review the solutions to fully learn the material and not just be able to do exam-type problems.

- (ii) Being responsible **NOT to text in class**.
 - (iii) Being responsible to come to class and on-time (or a little early)
- Course Inspiration Goals:
 - (i) Being inspired not to memorize solutions, but to derive them.
 - (ii) Being inspired to learn the concepts learned in the class at a deeper level.
- Approaches:
 - (i) **Small learning groups**
 - (ii) TEL videos and quiz practice problems
 - (iii) Homework
 - (iv) Computer assignments
 - (v) Algebraic and verbal interpretation
 - (vi) Your participation
- Course Requirements:
 - (i) Reading of class material.
 - (ii) Reading, doing and thinking for homework.
 - (iii) **Attend class and participate** in the educational process.
 - (iv) **No text messaging, emailing, or web browsing during class.** Wisconsin School of Business policy: the use of personal electronic technology (e.g. cell phone, iphone, ipod, blackberry, laptop computers, mp3 player) is not allowed during lectures or exams. Please disable your device prior to lectures. Any student who uses such technology during lecture will be asked to leave. Any student who uses such technology during an exam is in violation of the code of academic conduct of the University of Wisconsin-Madison.
 - (v) Completion of weekly homework, uploaded to course website, with your name/assignment # and saved as a PDF file.
 - (vi) Use CAS/SOA sponsored calculator on exams. From the SOA website: “Candidates may ONLY use the battery or solar-powered Texas Instruments BA35 model calculator, the BA II Plus, the BA II Plus Professional, the TI-30Xa or TI-30X II (IIS solar or IIB battery), or TI-30X MultiView (XS Solar or XB Battery). The memory of TI-30X II (IIS solar or IIB battery), TI-30X MultiView (XS Solar or XB Battery), BA II Plus and BA II Plus Professional will need to be cleared by the examination supervisor upon the candidates entrance to the examination room. For the BA II Plus and BA II Plus Professional, clearing will reset the calculator to the factory default settings.”
 - (vii) No cheat sheets for exams.
- My Teaching Philosophy:
 - (i) To provide a quality classroom/office atmosphere conducive to learning.
 - (ii) To defy the notion of a *dumb* question. There is no such thing as a dumb question.
 - (iii) To bring my enthusiasm as an instructor to the classroom to motivate you to actively learn.
 - (iv) To actively involve you in the teaching/learning process: multi-way communication through classroom participation, continuous course feedback, office hours.
 - (v) To introduce you to computer tools that can be helpful in understanding and applying the material.
- My Expectations for our Course:
 - (i) I will strive to provide you a thorough understanding of the material so that you can apply it in the workplace.
 - (ii) You will participate in class and provide feedback to me as to your understanding of the material.

- (iii) I encourage you to join a small learning group and come up during my office hours to work on your homework.
- (iv) Ask questions when you are unsure, either in class, in office hours, or by appointment. I'm usually around late afternoons. Poke your head in my office to let me know that you are there. If I am with a person from class, we could have multiple people in my office.
- (v) I want you to spend time on homework. See *Homework Grading Philosophy* below.
- Attendance and Participation:
 - (i) I expect you to come to class and come to class on time. If you know that you will be late, please let me know in advance of the class.
 - (ii) To have an inspired class requires effort on the part of the instructor and the student. Participating in class, both answering my questions and asking your own, helps facilitate your knowledge as well as others.
 - (iii) As much as I pride myself on being sensitive to others, I cannot read your minds. Communication is a goal of this course.
- My Homework Philosophy:
 - (i) Encourage you to try and re-try problems so that you learn material, not just be able to re-create problem solutions.
 - (ii) To encourage you to solve problems without the penalty of wrong answers.
 - (iii) Provide guidance as to where you've gone astray and alternative solutions.
 - (iv) Encourage teamwork and creativity with computer assignments.
 - (v) My solutions will be posted on my website.
 - (vi) See Homework Guidelines for details on completing homework assignments.
- Grading
 - (i) Attendance/Participation/No Texting/Homework/Quizzes: 10%
 - (ii) No personal crib sheets permitted for in-class exams and final
 - (iii) Test 1 Friday February 26 at 4pm: 30%
 - (iv) Test 2 Friday April 8 at 4pm: 30%
 - (v) Final Friday May 13 at 7:45am: 30%
 - (vi) Grade Criteria: A = 93%, AB = 89%, B = 80%, BC = 75%, C = 65%, D = 55%, F <55%