University of Connecticut
Math 3620: Foundations of Actuarial Science

Section 2

Syllabus – Fall 2026

Goal: The primary goal of Math 3620 is to develop an understanding of the foundations of actuarial science, the role of the actuary, external forces that influence actuarial work, and the framework and processes used in actuarial work.

Learning Objectives: The objective of this class is to provide you with a fundamental understanding of risk and insurance and of the varied roles that actuaries play in support of insurance companies and corporate buyers of insurance. We will also explore public vs. private health insurance. In other words, this course seeks to give a broad overview of the environment in which actuaries will apply specific mathematical solutions, as well as several of the products that insurance companies sell.

This course will be mostly conceptual in nature. While we will be doing some mathematical calculations, the focus will be on the environment in which actuaries work and how they develop programs to manage risk within that environment. My hope is that we can have some interesting conversations here about risk and how to manage it.

The concepts covered include:

- The nature and types of risk.
- The role of insurance in corporate risk management programs, including Enterprise Risk Management.
- The concepts of pooling and the Law of Large Numbers.
- The basic functions of insurance companies and how they add value to their owners and customers.
- The importance of surplus to an insurance company, and factors in determining the amount of surplus to hold.
- What reserves are, why they are vitally important to insurance companies, and the important role actuaries play in calculating reserves.
- Different types and features of insurance products.
- Fundamentals of group life and health insurance.
- The structure and sections of auto and homeowners (AHO) contracts, and emerging challenges in the AHO business.

Textbook: **Principles of Risk Management and Insurance (14th Edition)**
George Rejda, Michael McNamara, William Rabel
Pearson Education, Inc.

The student will be held responsible for the material in Chapters 1-17 and 20-23 as indicated in the week-by-week schedule, as well as material presented on the slide decks, a few spreadsheets, and in class discussion. (Note: This excludes end of chapter exercises. Also, some chapters will only cover the pages indicated on the schedule.)

Calculator: A financial calculator is needed for this class. **Smartphones are not allowed to be used in class**.

Instructor: **Scott Schneider**
Office: Montieth 129
Email: scott.schneider@uconn.edu

Office hours: Tuesday and Thursday: 9:30 am until 10:30 am.

I prefer that you meet me during office hours, but I will also schedule meetings at other times by appointment. See me before or after class or send me an email with your availability to schedule an appointment. Appointments on Monday, Wednesday, or Friday will be online using the "Class Collaborate" section on the "Content" page for this course on HuskyCT. I will confirm the day and time via email before we meet.

Class: Meeting times: Tuesdays and Thursdays 12:30 pm - 1:45 pm
Location**: Montieth 227**

If we need to meet remotely, we can use the "Class Collaborate" section on the "Content" page for this course on HuskyCT.

CLASS ATTENDANCE

Class will start promptly at 12:30 pm. In consideration of your fellow students, please plan to be in class at that time. While attendance will not be a direct consideration in your grade for this class, students who attend class regularly tend to absorb the material better than those students who do not attend class regularly. Students who attend class also benefit from discussions that occur during class periods.

Exams will be passed out at the beginning of class and latecomers will not be given extra time to take the exam. You are responsible for all information and announcements covered in class. If you are late or unable to attend class, it is your responsibility to obtain missed information. The information in this syllabus may be modified as the course progresses. These modifications will be posted on HuskyCT and will be included in updated versions of the syllabus.

CLASS FORMAT

Our classes will follow this general format:

- At the beginning of class, we will review and discuss the answer key for any exams and any questions you may have on that material. This is intended to be a DISCUSSION, so come prepared.
- Recap of the major points in the previous lecture.
- Discussion of the scheduled material.
- Assignments and homework.

I plan to post the lecture notes to HuskyCT by 8 pm the night before the lecture.

CLASS PREPARATION

You are responsible for reading all assigned material **BEFORE** the material is covered in class. Even if the content is not clear, prior exposure will familiarize you with terminology and allow you to focus on understanding the concepts discussed during class. As noted above, lecture notes will be posted to Husky CT the evening prior to the class.

Assignments will be assigned **AFTER** the material is covered in class. I encourage you to see me to discuss problems you are having with these assignments.

HOMEWORK

I do not plan to collect homework assignments. Homework is intended to give you practice questions on course content and will help you understand the material and prepare you for exams.

EXAMS

- Materials permitted for mid-term exams and the final exam: Pen/pencil and permissible calculator; (no papers, other than test paper);
- There may be special seating during the mid-term exams and the final exam;
- No phones or other devices. No headphones allowed;
- You may have a bottle of water during any exam;
- It is very important to arrive to class on time on exam days. This allows the exam to start as soon as possible, which maximizes the time available. It also reduces disruptions to other students from someone arriving after work has begun;
- I cannot provide writing instruments or calculators. You must bring your own.

Grading Plan:

Mid-Term Exam #1	22%
Mid-Term Exam #2	22%
Mid-Term Exam #3	22%
Final Exam	34%
Overall Grade	100%

Grading – Numerical and Alpha

A	= 93 – 100
A-	= 90 – 92
B+	= 87 – 89
B	= 83 – 86
B-	= 80 – 82
C+	= 77 – 79
C	= 73 – 76
C-	= 70 – 72
D+	= 67 – 69
D	= 63 – 66
D-	= 60 – 62
F	= < 60

MATH 3650: FINANCIAL MATHEMATICS I
TENTATIVE SCHEDULE

Tuesday	Thursday
September 1 Intro/Begin Chapter 1	September 3 Finish Chapter 1; Begin Chapter 2, including Pooling of Risks
September 8 Finish Chapter 2 and Pooling; Begin Chapter 3	September 10 Finish Chapter 3; Begin Chapter 4
September 15 Finish Chapter 4; Chapter 5	**September 17** **Career Fair** **NO CLASS**
September 22 **Exam 1: Chapters 1-5 and Pooling**	September 24 Chapter 6; Start Chapter 7
September 29 Review Exam 1; Finish Chapter 7; Begin Chapter 8	October 1 Finish Chapter 8; Begin Chapter 9
October 6 Finish Chapter 9; Begin Chapter 10	October 8 Finish Chapter 10; Review Chapters 6-10
October 13 **Exam 2: Chapters 6-10**	October 15 Begin Chapter 11, including mathematics of UL account roll-forwards
October 20 Review Exam #2; Finish Chapter 11, Chapter 12 (Pages 244-251, 258-263), and Chapter 13 (Pages 274-275 on Taxation)	October 22 Begin Chapter 14
October 27 Finish Chapter 14, including the mathematics of fixed and variable annuities	October 29 Chapter 17 [Pages 366-377, including 403(b) but not SEP section; 380-382 Problems and Issues section]
November 3 Review Chapters 14 and 17	**November 5** **Exam 3: Chapters 11, 12, 13, 14, and 17, including UL and Annuity Mathematics**

MATH 3650: FINANCIAL MATHEMATICS I
TENTATIVE SCHEDULE

Tuesday	Thursday
November 10 Chapter 15 [Pages 308-330]	November 12 Review Exam 3; Finish Chapter 15, Begin Chapter 16 [Pages 339-350 to end of ACA section]
November 17 Finish Chapter 16	November 19 Chapter 20
November 24 **THANKSGIVING RECESS** **NO CLASSES**	November 26 **THANKSGIVING RECESS** **NO CLASSES**
December 1 Chapter 21 [Pages 467-478, stop at beginning of High-Risk Driver section]	December 3 Chapter 22 [Pages 493-502, stop at Additional Coverages; 504-507, stop at Exclusion section]
December 8 Chapter 23 [Pages 521-527, stop at Section II Additional Coverages]	December 10 Finish any remaining material; Review for Final Exam
Week of December 14 Final Exam – Cumulative Date TBD Time TBD Location TBD	

A. Academic Integrity

A fundamental tenet of all educational institutions is academic honesty; academic work depends upon respect for and acknowledgement of the research and ideas of others. Misrepresenting someone else's work as one's own is a serious offense in any academic setting and it will not be condoned.

Academic misconduct includes, but is not limited to, providing or receiving assistance in a manner not authorized by the instructor in the creation of work to be submitted for academic evaluation (e.g. papers, projects, and examinations); any attempt to influence improperly (e.g. bribery, threats) any member of the faculty, staff, or administration of the University in any matter pertaining to academics or research; presenting, as one's own, the ideas or words of another for academic evaluation; doing unauthorized academic work for which another person will receive credit or be evaluated; and presenting the same or substantially the same papers or projects in two or more courses without the explicit permission of the instructors involved.

A student who knowingly assists another student in committing an act of academic misconduct shall be equally accountable for the violation and shall be subject to the sanctions and other remedies described in *The Student Code*.

Please see the link to the Academic, Scholarly, and Professional Integrity and Misconduct Policy. https://policy.uconn.edu/2023/07/11/academic-scholarly-and-professional-integrity-and-misconduct-aspim-policy-on/

B. Professionalism

The actuarial profession is an honored one. Actuaries agree to live by a Code of Professional Conduct, which is important to instill public trust in the profession.

Precept 1 of the Code is on Professional Integrity. It states: "An actuary shall act honestly, with integrity and competence, and in a manner to fulfill the profession's responsibility to the public and to uphold the reputation of the actuarial profession."

As most of you are aspiring actuaries, my expectation is that you start living by this code now. I expect you to work with honesty and integrity in all aspects of this class, including on assessments and exams. An actuarial career can be very rewarding both financially and intellectually, but it requires all members of the profession to act according to the code or we will lose the trust of the public and our potential employers.

C. Final Exams

Final exam week for the Fall 2026 semester takes place from Monday, December 14 through Saturday, December 19 (note: the final exam date, time and location for this class is TBD). Students are required to be available for their exam during the stated time. If you have a conflict with this time, you must contact the Dean of Students Office to discuss the possibility of rescheduling this exam.

Please note that vacations, previously purchased tickets or reservations, graduations, social events, misreading the exam schedule and over-sleeping are not viable excuses for missing a final exam. If you think that your situation warrants permission to reschedule, please contact the Dean of Students Office to discuss rescheduling.