

## MATH 4270/5270 Actuarial Mathematics II

Textbook for Fall, 2019: **Models for Quantifying Risk | 6<sup>th</sup> Edition**

**This book can be purchased directly from the publisher [ACTEX](#). (Links to an external site.)**

From the Actex main page menu select Exams/SOA Exams/SOA LTAM/Actex Textbooks

Digital or paperback versions are available. This is the only textbook needed.

[Table of Contents](#) (Links to an external site.)

Important: Set your Notifications preferences in Canvas to update at least once a day so that you will receive announcements promptly.

### **Description:**

Prerequisite: MATH 4260/5260 or consent of instructor.

Math 4260-4270 (5260-5270) is a two-semester sequence that covers survival models, life insurance, life annuities, and other topics that comprise the content of the [Society of Actuaries Exam LTAM](#) (Links to an external site.)

Textbook: *Models for Quantifying Risk, Sixth Edition* (Links to an external site.), by Stephen J. Camilli, Ian Duncan, and Richard L. London, Actex Publications, Inc.

Additional references: Actuarial Mathematics for Life Contingent Risks, 2nd Edition, 2013, Dickson, D., Hardy, M., Waters, H., Cambridge University Press.

More resources: [The Actuarial Outpost](#) (Links to an external site.) has several discussion boards, including boards dedicated to actuarial exams. It is an independent board, not sponsored by the SOA, CAS or other professional organization.

**Notation and formulas:** This subject introduces in a standard system of notation used by actuaries. Many formulas are introduced and must be memorized in order to become expert at problem solving. Just as in calculus, it is important to learn a substantial set of formulas in order to be skilled and efficient in problem solving.

**Homework:** Homework is beneficial only if one reads the text rather than use it as a “look up” reference for formulas. After careful reading and understanding examples in the textbook, resist the habit of constantly looking up formulas in the book. It is a better strategy to collect essential formulas in a dedicated section of your notebook, where you can work towards seeing patterns and become comfortable with the notation.

**Calculators:** The classroom policy is that any scientific calculator can be used for assignments or exams. Keep in mind, however, that a graphing calculator such as the TI-84 is not permitted on actuarial exams. It is best to learn to solve the problems using just the basic features of the calculator (for example, do not rely on your calculator to solve equations, do integration, multiply matrices, etc.).

**Cell phone policy:** All cell phones should be put away during class. Please wait until after class to respond to text messages and other notifications.

Grading:

Homework, Quizzes, and Daily Participation (Presenting Solutions): 50%

Midterm Exam: 25%

Final: 25%

The course grade will be determined by the percentage of total points earned:  
90%-100% A, 80%-89% B, 70%-79% C, 60%-69% D, <60% F.

**Topics Covered** in MATH 4260/5260 and MATH 4270/5270 with corresponding Chapter numbers from the textbook:

Part I: Review and Background Material

Chapter 1: Review of Interest Theory

Chapter 2: Review of Probability (Independent Reading)

Chapter 3: Independent Reading

Chapter 4: Types of Insurance and Pensions (Independent Reading)

Part II: Models for Survival-Contingent Risks

Chapter 5: Survival Models (Continuous Parametric)

Chapter 6: The Life Table (Discrete)

Chapter 7: Life Insurance Models

Chapter 8: Life Annuities

Chapter 9: Premiums

Chapter 10: Premium Reserves

Chapter 11: Reserves as Financial Liabilities

**Assignments and Quizzes:** All assigned work will be announced approximately one week before the due date. Some quizzes are in the form of in class open book/notes group activities with worksheets. Some quizzes may not be announced in advance. Each assignment and/or quiz carries a varying number of possible points based on the number of problems, and the grade is based on total points accumulated throughout the semester. Unexcused late work is penalized, so it is important to submit assignments at the start of class on the due date. The first late penalty is 10% increasing by 10% for each late submission. Please be sure to contact me in the event of illness, sponsored university events, etc. Email is the best way to contact me.

- Daily student participation will be graded.
- Each student will be expected to present solutions to assigned problems in class for the daily participation grade.

**Final Exam:** See the BGSU Spring Final Exam Schedule for the date and time of the final.

**Learning Outcomes:**

Learning outcomes are given in the [Exam LTAM syllabus](#). (Links to an external site.) A copy of the [learning outcomes](#)  is also provided in the Reference Module.

## General Information and Resources for Students

### The Learning Commons

The **Learning Commons** provides “one-stop-shop” academic support within the Jerome Library in the areas of Academic Coaching, Supplemental Instruction, Writing Consultations, Math/Stats Tutoring, subject groups and individual assistance.

The Learning Commons is a collaborative environment designed to foster independent learning to meet the needs of any student in any course at any time in the learning process. For more information, or to make an appointment: [tlc@bgsu.edu](mailto:tlc@bgsu.edu); 419-372-2823; [www.bgsu.edu/learning-commons.html](http://www.bgsu.edu/learning-commons.html) (Links to an external site.) .

### University Libraries

The University Libraries supports the teaching, learning and research mission of BGSU by advancing scholarship and creativity through collections and user-centered services that connect faculty and students to high quality information resources. For more information, to reserve a study space or to make an appointment: <http://www.bgsu.edu/library.html> (Links to an external site.) ;<http://www.bgsu.edu/library/ask-us.html> (Links to an external site.) ; 419-372-6943; [libhelp@bgsu.edu](mailto:libhelp@bgsu.edu).

### Academic Honesty Policy/Codes of Conduct

The instructor and students in this course will adhere to the University’s general Codes of Conduct defined in the BGSU Student Handbook. The Code of Academic Conduct (Academic Honesty Policy) requires that students do not engage in academic dishonesty. For details, refer to the BGSU Codes of Conduct site at <https://www.bgsu.edu/student-handbook/code-of-conduct.html>. (Links to an external site.)

The instructor and students will adhere to the general Code of Academic Conduct as outlined of the [BGSU Student Handbook](#) (Links to an external site.). Specifically, students will not cheat, fabricate, plagiarize or facilitate academic dishonesty. Students who passively engage in cheating (i.e. allowing others to cheat off of them) may receive the same consequences as the person copying. In group work, if your partner or teammates do all the work on an assignment, you should not be listed as a contributor and should receive no credit for that work. If you allow an assignment to be submitted listing you as a contributor, but you did not contribute, this is equivalent to plagiarism.

### Classroom Expectations/Inclusion

Students are expected to display tolerance and respect in all communication. Comments and language should be respectful and appropriate for a college community. All comments should also follow acceptable grammar and spelling.

### Disability Services

If you have a disability that I should be aware of, please notify me so that I can make arrangements to accommodate your learning needs. To get more information about your rights, contact the Office of Disability Services for Students located in 38 College Park, 419-372-8495. (<http://www.bgsu.edu/disability-services.html> (Links to an external site.))

### Religious Holidays

It is the policy of the University to make every reasonable effort to allow students to observe their religious holidays without academic penalty. In such cases, it is the obligation of the student to provide the instructor with reasonable notice of the dates of religious holidays on which he or she will be absent. Absence from classes or examinations for religious reasons does not relieve the student of responsibility for completing required work missed. Following the necessary notification, the student should consult with the instructor to determine what appropriate alternative opportunity will be provided, allowing the student to fully complete his or her academic responsibilities. (As stated in The Academic Charter, B-II.G-4.b at:<http://www.bgsu.edu/downloads/file919.pdf> (Links to an external site.).)

### Technology Support

Provides a central point of contact for faculty, staff and students for questions, problem reports, service requests and inquiries for University computer systems and communications technologies at BGSU. Email: [tsc@bgsu.edu](mailto:tsc@bgsu.edu) Phone: (419) 372-0999.

### Veterans

BGSU educators recognize student veterans' rights when entering and exiting the university system. If you are a student veteran, please communicate with your instructor so reasonable accommodations can be made for absence when drilling or being called to active duty. See (<http://www.bgsu.edu/veteran/> (Links to an external site.)) for more information.