MATH 501: Mathematical Foundations of Actuarial Analysis, Spring 2020

**Lectures:** Tuesday/Thursday, 09:30-10:45, Seaton 2068.

**Instructor:** Joana Amorim, jamorim@ksu.edu. Office: Leasure 14.

**Office Hours:** Monday: 5.30 to 6.30 pm and Tuesday: 10.45 to 11.45 am.

**Course Goals:** This course covers standard topics in probability and statistics as they relate to problems in actuarial science. We will cover general probability, univariate random variables, multivariate random variables and, time permitting, “Risk and Insurance” introduction. This course is meant to prepare students for the Probability exam (Exam P/1) offered by the Society of Actuaries (SOA) and the Casualty Actuarial Society (CAS)- the syllabus for these exams, which we will aim to cover in full, can be found here: https://www.soa.org/globalassets/assets/files/edu/2020/2020-03-exam-p-syllabus.pdf

**Textbook and other resources:**

- **Recommended Textbook** (I will mainly follow this for lectures). We will cover Chapters 1–8 (excluding section 8.5):
  

  *A copy of this book will be on hold in the Mathematics and Physics Library.*

- For the “Risk and Insurance” part: SOA note available here https://www.soa.org/globalassets/assets/files/edu/P-21-05.pdf

- There are many other references and online resources for preparing for exam P.
  
  - I will also be using for the course the ACTEX Exam P Study Manual, Spring 2019 Edition;
  
  - I have had good feedback from the website “Coaching Actuaries” for exam preparation;

  **Other textbooks suggested by SOA:**

  
  
  
**Calculator:** You will need access to a Texas Instruments TI-30Xa, TI-30X II or TI-30XS Multi-View. These calculators are allowed on Exam P and have all the features that we need. You are free to use a different calculator- you may be asked to delete the memory before exams; however, you may not use a cellphone on any in-class evaluations.

**Website:** All information and material related to the course, such as homework assignments, lecture notes, grades and announcements will be posted on K-State Canvas.

**Evaluation:**
- Homework: 30%
- Mid-term 1: 20%
- Mid-term 2: 20%
- Final: 30%

**Exams:** There will be two (in class) midterm exams during the semester and one final (cumulative) exam. The final must be taken in order to receive a grade A-D.

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<tr>
<th>Exam</th>
<th>Date</th>
<th>Time</th>
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<tr>
<td>Midterm 1</td>
<td>February 27 (Thursday), in class</td>
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<tr>
<td>Midterm 2</td>
<td>April 16 (Thursday), in class</td>
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<td>Final</td>
<td>May 11 (Monday), 2:00 - 3:50 pm</td>
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**Homework:**
- All homework is due on Tuesdays by 6pm (there will be a homework box).
- Weekly written homework assignments will be posted on Canvas. Late homework will not be accepted. There will be 12 assignments and the two lowest scores will be dropped.
- Please always write legibly and present your solutions in an organized way. Write your name at the top of the front page and staple your homework.
- Please put your solutions in the exact order of problems in which they were assigned.
- For full credit, show your work in detail.

**Useful drop dates:** February 10: last day to drop with a 100% refund. February 17: last day to drop with a 50% refund. February 25: last day to drop with a W being recorded.

**Information and Resources:** Exam P is offered on a regular basis as a “Computer Based Test” (CBT) through the SOA. Currently, it costs 225 dollars to register for a given testing window. Be advised that you will need to study additionally above-and-beyond this course alone. That said, it is possible to do that concurrently and pass Exam FM directly after our class in the May window. If you want to do this, the deadline to register is April 14th. Below are websites with more information about Exam FM and the actuarial sciences:

- Society of Actuaries: [https://www.soa.org/education/exam-req/edu-exam-p-detail/](https://www.soa.org/education/exam-req/edu-exam-p-detail/)
- Casualty Actuarial Society: [www.casact.org](http://www.casact.org)
- BeAnActuary: [www.beanactuary.org](http://www.beanactuary.org)
Statement Regarding Academic Honesty: Kansas State University has an Honor and Integrity System based on personal integrity, which is presumed to be sufficient assurance that, in academic matters, one’s work is performed honestly and without unauthorized assistance. Undergraduate and graduate students, by registration, acknowledge the jurisdiction of the Honor and Integrity System. The policies and procedures of the Honor and Integrity System apply to all full and part-time students enrolled in undergraduate and graduate courses on-campus, off-campus, and via distance learning. The Honor and Integrity System website can be reached via the following URL: www.k-state.edu/honor. A component vital to the Honor and Integrity System is the inclusion of the Honor Pledge which applies to all assignments, examinations, or other course work undertaken by students. The Honor Pledge is implied, whether or not it is stated: “On my honor, as a student, I have neither given nor received unauthorized aid on this academic work.” A grade of XF can result from a breach of academic honesty. The F indicates failure in the course; the X indicates the reason is an Honor Pledge violation.

Statement Regarding Students with Disabilities: Students with disabilities who need classroom accommodations, access to technology, or information about emergency building/campus evacuation processes should contact the Student Access Center and/or their instructor. Services are available to students with a wide range of disabilities including, but not limited to, physical disabilities, medical conditions, learning disabilities, attention deficit disorder, depression, and anxiety. If you are a student enrolled in campus/online courses through the Manhattan or Olathe campuses, contact the Student Access Center at accesscenter@kstate.edu, 785-532-6441; for K-State Polytechnic campus, contact Academic and Student Services at polytechnicadvising@ksu.edu or call 785-826-2974.

Statement Defining Expectations for Classroom Conduct: All student activities in the University, including this course, are governed by the Student Judicial Conduct Code as outlined in the Student Governing Association By Laws, Article V, Section 3, number 2. Students who engage in behavior that disrupts the learning environment may be asked to leave the class.