MATH 500: Mathematical Theory of Interest, Fall 2019

Lectures: Tuesday/Thursday, 11:30-12:45, Cardwell 120.
Instructor: Joana Amorim, jamorim@ksu.edu. Office: Leasure 14.

Course Goals: This course covers standard topics in Financial Mathematics. We will discuss interest rates and the time value of money, the valuation of annuities, stocks and bonds, loans and their repayment, portfolios and their immunization and (time permitting) swaps and determinants of interest rates. The main objective herein is to highlight many of the themes found on the Financial Mathematics Exam (Exam FM / Exam 2) regularly offered by the Society of Actuaries (SOA). It is worth noting that the SOA has changed the syllabus for this exam as of July 2017. We will aim toward the content of this new syllabus that can be found here: https://www.soa.org/globalassets/assets/files/resources/research-report/2019/2019-12-exam-fm-syllabus.pdf


Calculator: You will need access to a Texas Instruments BA II Plus Financial Calculator. The BA II Plus is allowed on Exam FM by the SOA and has all the features that we need. You are free to use a different calculator (e.g. a graphing calculator equipped with a financial mathematics program); 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.

Midterm 1: October 3 (Thursday), in class
Midterm 2: November 14 (Thursday), in class
Final: December 16 (Monday), 9:40 - 11:30 am

Homework:

- All homework is due on Tuesdays in class.
- 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: September 16: last day to drop with a 100% refund. September 23: last day to drop with a 50% refund. September 30: last day to drop without a W being recorded. November 1: last day to drop with a W being recorded.

Information and Resources: Exam FM 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 December window. If you want to do this, the deadline to register is November 5th. Below are websites with more information about Exam FM and the actuarial sciences:

• Society of Actuaries: www.soa.org/education/exam-req/edu-exam-fm-detail.aspx

• Casualty Actuarial Society: www.casact.org

• BeAnActuary: 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.