

COURSE SYLLABUS

Course Information

THEORY OF ACTUARIAL MODELS: FINANCIAL ECONOMICS

SPRING 2017

ACTS 6302

View Syllabus Online from <http://go.utdallas.edu/acts6302.001.17s>

SECTION	CALL NO	TIME	CLASS ROOM	INSTRUCTOR
6302.001	26522	MW 1:00 – 2:15 PM	<u>CB3 1.310</u>	Koshevnik

Professor Contact Information

DR. YULY KOSHEVNIK

FA 2.408

972-883-4178

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OFFICE HOURS:

M W 3:30 – 5:00

T R 6:00 – 7:00 OR F 12:00 – 2:00

Course Pre-requisites, Co-requisites, and/or Other Restrictions

STAT 5351 or Instructor's Consent Required

Course Description

Stochastic models including Markov chains, random walks, Poisson processes, renewal processes, and an introduction to time series and forecasting.

Student Learning Objectives/Outcomes

This course develops the student's knowledge of the theoretical basis of certain actuarial models and the application of those models to insurance and other financial risks. The topics discussed include interest rate models, rational valuation of derivative securities, mathematical and probabilistic foundation of risk management. This class covers parts of CAS exam 3F and SOA exam MFE.

Required Textbooks and Materials

1. [ASM MFE] Study manual for Exam MFE/Exam 3F. Financial Economics (9th Edition), by Abraham Weishaus.
2. ADDITIONAL TEXT (not required, but useful – check the library for this resource): Derivatives Markets (Recent Edition), Robert L. McDonald.

IMPORTANT DATES & HOLIDAYS	
CLASSES START	JANUARY 9
MLK DAY	JANUARY 16
DROP WITHOUT A "W"	WEDNESDAY, JANUARY 25
DROP (APPROVAL REQUIRED)	JANUARY 26 – MARCH 30
INTERMEDIATE EXAM 1	FEBRUARY 22
DROP WITH WL	FEBRUARY 21 – MARCH 30
SPRING BREAK	MARCH 13 – MARCH 18
INTERMEDIATE EXAM 2	APRIL 5
FINAL EXAM	FRIDAY, MAY 5 => 2:00 – 4:30 PM => CB3 1.310

USEFUL LINKS:

<https://www.soa.org/education/exam-req/edu-exam-mfe-detail.aspx>

(MFE Exam information)

COURSE SYLLABUS

Grading Policy

Your final class average will be determined based on the following weighting:

Two Intermediate Exams + Final (in class) $(25\% + 25\% + 30\%) = 80\%$

Homework Assignments (to be submitted in class) **20%**

Make-up exams will **not** be allowed, unless extraordinary circumstances emerge.

Grading Scale:

Grading: Scale	[94, 100]	[89, 93.9]	[85, 88.9]	[79, 84.9]	[75, 78.9]	[70, 74.9]	[65, 69.9]	[60, 64.9]	Below 60
	A	A -	B+	B	B -	C+	C	C -	F

Course & Instructor Policies

- You must attend the class – all sessions.
- Homework will be assigned every week (excluding the week of Exam). Papers will be collected in class only, and graded within one week.
- My office hours should be utilized when you need to clarify the course topics. Use this option, once you feel any uncertainty about the material.

TENTATIVE COURSE OUTLINE		
Dates	Topics	Lessons [ASM MFE]
01/09 – 01/11	Put-Call Parity	Lesson 1
01/16	Martin Luther King's Day	No Classes
01/18 – 01/23	Comparing Options	Lesson 2
01/25 – 01/30	Binomial Trees – Stock, One Period	Lesson 3
02/01 – 02/06	Binomial Trees – General	Lesson 4
02/08 – 02/13	Risk-Neutral Pricing	Lesson 5
02/15 – 02/20	Binomial Trees: Miscellaneous Topics	Lesson 6
02/22	Exam I	Lessons 1 – 6
02/27 – 03/01	Modeling stock prices: Lognormal distribution	Lesson 7
03/06 – 03/20	Fitting stock prices to a Lognormal distribution	Lesson 8
03/14 – 03/19	Spring Break	No Classes
03/20 – 03/22	The Black-Scholes formula: Introduction	Lesson 9
03/27 – 03/29	The Black-Scholes formula: Applications and Volatility	Lessons 10 – 11
04/03	Delta Hedging	Lesson 12
04/05	Exam II	Lessons 6 – 11
04/10	Asian, Barrier, and Compound Options	Lesson 13
04/12	Gap, Exchange, and Other options	Lesson 14
04/17	Monte Carlo valuation	Lesson 15
04/19	Brownian Motion and Itô's Lemma	Lessons 16 – 17
04/24	Binomial Tree Models for Interest Rates	Lesson 18
04/24 – 04/26	The Black Formula for Bond Options	Lesson 19
04/26	Last Day – Course Overview	All Sections Covered
May 3 – 9	Final Exam (To Be Announced)	

These descriptions and timelines are subject to change at the discretion of the Professor.

Common policies can be seen from <http://provost.utdallas.edu/syllabus-policies/>