MISSOURI S&T

Formerly University of Missouri–Rolla

DEPARTMENT of MATHEMATICS and STATISTICS

Dr. Martin Bohner

Curators' Distinguished Professor

```
106 Rolla Building
Rolla, MO 65409-0020
Phone:  (573)341-4129
Fax:  (573)341-4741
E-Mail:  bohner@mst.edu
http://web.mst.edu/~bohner
```

Math 6737/Econ 6337 "Financial Mathematics II", Spring 2023.

Lecture: Monday, Wednesday, and Friday in CS-204 from 11 to 11:50 in the morning. The website for this class is

http://web.mst.edu/~bohner/math6737-23/math6737.html.

Office Hours: MWF with zoom from 2 to 2:50 in the afternoon. Also by appointment. Appointments may be scheduled in person, by phone, or via e-mail.

Text: Lecture Notes in pdf format will be provided.

Description: Preliminaries from calculus and probability theory, stochastic processes, Brownian motion, Markov property, random walk, Poisson process, discrete and continuous time finance, European options, American options, exotic options. Itô integral, Itô's formula, stochastic differentials and Itô processes, stochastic differential equations, existence and uniqueness, diffusion processes, martingales, semimartingales, change of probability measure, Girsanov's theorem, applications in finance, interest rate theory, fixed income models.

Homework Assignments: There will be 10 weekly homework assignments. They are available as pdf files on the lecture's web site. Homeworks need to be uploaded to Canvas before the deadline as one single pdf file (in correct order and orientation) and selected problems will be graded. Instead of collection of homeworks, there may be a quiz during class on the homework material.

Hour Exams: There will be 3 exams during class. These exams will be announced at least one week in advance.

Final Exam: The final exam is comprehensive and will be on Monday, May 8, from 10 to noon in the morning.

Attendance Policy: You are expected to attend every class period. With two absences from class, you receive an academic alert. With four absences, you will be dropped from the class.

Grading Policy: Each of the ten homework assignments is worth 50 points, each of the three hour exams 100 points, and the final exam 200 points. Hence the emphasis on the final amount of points is weighted as follows:

Homework	Hour Exams	Final
50%	30%	20%

Altogether 1000 points are available. If p is the final amount of points, the final grade will be determined according to the following table:

F	C	B	A
$p < 650$	$650 \leq p < 800$	$800 \leq p < 900$	$p \geq 900$