

Math 418C Spring 2019
Financial Mathematics III

Instructor: Dr. Kathy Temple

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Office Hours: MF 10-10:50 AM, TTh 1:00-1:50 PM, and by appointment.

Course Goals: Math 418C will cover some of the material on Exam IFM of the Society of Actuaries. In particular, we will talk about an introduction to derivatives, including pricing models, and some additional financial topics.

This quarter, we will cover:

- Basics of forwards and call and put options;
- Caps, floors, synthetic forwards, spreads, collars, straddles, and butterfly spreads;
- Hedging and insurance;
- Forwards and futures;
- Put-call parity and comparing options;
- Binomial option pricing model;
- Risk-neutral pricing;
- Black-Scholes formula;
- Delta-hedging;
- Exotic options;
- Lognormal stock pricing model.

Prerequisites: Math 418B and a course that does some probability theory (Math 314 or Math 411B).

Required Texts: McDonald, *Derivatives Markets*, 3rd edition; we will cover all or parts of chapters 2, 3, 5, 9, 10, 11, 12, 13, 14, and 18.

Evaluation:

- Two in-class exams (20% each); tentative testing dates: Tuesday, April 23, and Tuesday, May 14.
- Comprehensive final exam (30%); given Tuesday, June 4, from 12-2PM.
- Homework (30%).

Grades will be assigned according to the following scale:

	A	93-100%	A-	90-92.99%	
B+	87-89.99%	B	83-86.99%	B-	80-82.99%
C+	77-79.99%	C	73-76.99%	C-	70-72.99%
D+	67-69.99%	D	63-66.99%	D-	60-62.99%
	F	59.99%			and below

Course Conduct:

- **Required Materials:** The textbook is required. You will also need at least a scientific calculator. I strongly recommend a financial calculator, in particular either the BAI+ or the BAI+ Professional. I will assume on exams that you have access to such a calculator.
- **Homework:** Homework will be assigned often in class and due dates will be announced at the time of the assignment. Homework must be done neatly, *stapled*, and written on clean-edged paper (no notebook fringes). Your work should be clear, in a logical order, use correct mathematical notation, and provide sufficient explanation. What's sufficient explanation? A good guide is to think about whether another student in the class who didn't know how to do this particular problem could understand your solution. This will also help you understand your solution later! Collaboration on homework is permitted, but **copying is not permitted**. A good rule of thumb is that you should write up a problem on your own, even if you worked with others to figure it out. Credit will not be given to any party for work which is identical. I reserve the right to change this syllabus, including evaluation procedures, if copying becomes a problem. Credit will not be given for late homework, but I will drop one homework score.

I will also assign smaller homework assignments of the form, "Read this section in the book/study note and respond to these questions." These will probably have a much shorter turn-around time than the regular homework assignments and, in particular, I may ask you to do this before the next class meeting.

- **Exams:** Any changes to the tentative exam schedule will be announced in advance. Make-up arrangements must be made prior to an exam unless you can document an unexpected circumstance beyond your control that prevented you from taking the exam. All make-up exams must be requested as early as possible. Exams requested more than 24 hours after the scheduled exam will be given only in extreme extenuating circumstances (e.g. hospitalization, jail . . .) When a make-up exam cannot be taken in a timely manner, typically before exams are returned to the class, I reserve the right to instead replace that portion of the course grade with the final exam grade.
- **Office Hours:** In addition to scheduled office hours, the block between 10AM and noon on MTThF will often be a good time to find me. Late afternoons most of those days should be good, as well. I may not be around my office as much on Wednesdays - it's my day for meetings and other work this quarter. I am, however, happy to make appointments - just please request an appointment before 5PM the day before (and please understand that you may have to be somewhat flexible about the time). If you are coming in to office hours to ask a question, please bring your class notes with you, and (for homework questions) the work you have done so far on the problem.
- **Other Information:** Central Washington University is committed to creating a learning environment that meets the needs of its diverse student body. If you anticipate or experience any barriers to learning, discuss your concerns with the instructor. Students with disabilities should contact Disability Services to discuss a range of options to removing barriers, including accommodations. Student Disability Services is located in Hogue 126. Call (509) 963-2214 or email ds@cwu.edu for more information.

I reserve the right to adjust policies in this syllabus if necessary during the quarter.

During the last week of class, you will have regular homework assignments due. We will be covering new material up to and possibly including the last day of class.