

Math 418C Spring 2010
Financial Mathematics III

Instructor: Dr. Kathy Temple

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Office Hours: MW 1:00-1:50PM, TThF 10-10:50AM, and by appointment.

Course Goals: This sequence of courses (418A, B, and C) is designed to provide students with an understanding of the fundamental concepts of financial mathematics, and how those concepts are applied in calculating present and accumulated values for various streams of cash flows as a basis for future use in reserving, valuation, pricing, asset/liability management, investment income, capital budgeting, and valuing contingent cash flows. The third quarter will also include an introduction to financial instruments, including derivatives, and the concept of no-arbitrage as it relates to financial mathematics. The sequence is designed to prepare students for Exam FM/2 offered by the Society of Actuaries and the Casualty Actuarial Society. For more detailed learning objectives, see the syllabus for this exam at

<http://www.soa.org/files/pdf/edu-2010-05-spring-exam-fm.pdf>. This quarter, we will cover:

- Introduction to derivatives and short-selling
- Basics of forwards and call and put options
- Caps, floors, synthetic forwards, spreads, collars, straddles, and butterfly spreads
- Hedging and insurance
- Forwards and futures
- Commodity and interest rate swaps

Prerequisite: Math 418B.

Required Text: McDonald, *Derivatives Markets*, second edition. We will be covering all or parts of chapters 1, 2, 3, 4, 5, and 8. If we have time, we will also cover chapter 9, which is on the syllabus for Exam MFE/3F.

Evaluation:

- Two in-class exams (30% each); tentative testing dates: Tuesday, April 20, and Tuesday, May 18.
- Homework (40%).

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.

- **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, 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.
- **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. The two mid-terms will cover the material from *Derivatives Markets* that we have covered so far (so the second one will be cumulative). After the second exam, we will spend our time reviewing and doing practice problems (for those who haven't yet taken/passed FM) or moving on to the MFE material (for those who have).
- **Other Information:** Students with disabilities who wish to set up academic adjustments in this class should give me a copy of their "Confirmation of Eligibility for Academic Adjustments" from the Center for Disability Services as soon as possible so we can discuss how the approved adjustments will be implemented in class. Students without this form should contact the Center for Disability Services, Bouillon 205 or dssrecept@cwu.edu or 963-2171.