

**Math 418A Fall 2018**  
**Financial Mathematics I**

**Instructor:** Dr. Kathy Temple

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**Office Hours:** MW 1 - 1:50PM, TTh 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 offered by the Society of Actuaries; we will also cover some material that is on Exam IFM. This quarter, we will cover:

- Interest rate measurement, including rates of interest and discount
- Time value of money and equations of value
- Valuation of annuities with level, non-level, and continuous payments
- Basics of loan repayment

**Prerequisite:** Math 173 or permission. You need to be comfortable with calculus, and it will help (although isn't essential) if you have seen geometric sums and series.

**Required Text:** Vaaler & Daniel, *Mathematical Interest Theory*, 2nd Edition. This quarter we will cover the first four chapters and the first couple sections of chapter 5.

**Evaluation:**

- Two in-class exams (20% each); tentative testing dates: Tuesday, October 16, and Tuesday, November 6.
- Comprehensive final exam (30%); given Tuesday, December 4, from 12-2PM. Please note that the final exam time is set by the Registrar's Office and cannot be changed. In particular, no early final exams will be given.
- Homework (25%).
- Case study (5%).

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.
- **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.
- **Case Study:** During this quarter, we will be beginning a case study that we will continue into winter quarter. The assignment will involve solving an actuarial problem and writing a memo to a client detailing your solution. More details will be given later in the quarter; we will probably begin once we have some annuity tools, around week 6 or 7.
- **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 change the policies contained in this syllabus as dictated by developments during the quarter.

During the last week of class, you will have regular homework assignments due. All or part of the case study assignment may be due during the last week of class, as well.