

MA 2211 – Theory of Interest 1

Professor: Barry Posterro, office Stratton Hall 105D, posterro@wpi.edu

Lectures: Salisbury Labs 104 MTRF 10AM

Conference: Stratton Hall 308 Wednesday 10AM

Book: Mathematics of Investment and Credit **Sixth Edition**

Calculator: **BAll Plus Professional**

Office Hours: will be announced on Monday each week; appointments can also be made

Email: posterro@wpi.edu please include the term “MA2211” in your subject heading

Material to Cover

The goal of this course is to make you proficient with calculations regarding the time value of money. Our goal is to build understanding and speed. Most of this material presented in this course is covered on actuarial exam FM.

Lecture

Attendance is the most important part of this class. It is assumed you are at all lectures and conferences.

Self-Study

The ability to learn directly from the text is an important part of being able to prepare for actuarial exams. As such, there are topics that I will assign you to read in the book on your own and give you suggested problems to work to check your understanding. These topics will also appear on quizzes and exams at the same level of difficulty as the practice problems. After they have appeared on exams, we can discuss them in class, but the goal is that you'll be able to learn this material on your own.

Book and Calculator

It is assumed you have the correct textbook. Older editions are not acceptable. Homework is assigned from the textbook and your submission must align with the textbook required for the class. The calculator required for the class is the only calculator permitted on the quizzes, tests, and final. Class exams are written assuming you can utilize the calculator efficiently.

Tentative Schedule:

Aug 25: Chpt 1: Introduction, accumulated value, compound interest, simple interest

Aug 26: Chpt 1: Present Value, current value, non-annual compounding, nominal interest rates

Aug 29: Chpt 1: force of interest, discount rates, real rate of interest

Aug 30: Catch up and calculator practice

Sept 1: **Quiz 1;** Chpt 2: Accumulated value of an annuity

Sept 2: Chpt 2: Present Value of an annuity, perpetuities

Sept 6: Chpt 2: immediate annuities vs annuities due

Sept 8: **Quiz 2;** Chpt 2: non-annual annuities and continuous annuities

Sept 9: Chpt 2: increasing and decreasing annuities

Sept 12: Chpt 2: dividend discount model, yield rates

Sept 13: Catch up

Sept 15: **Test 1**

Sept 16: Chpt 3: amortized loans

Sept 19: Chpt 3: outstanding balances and sinking funds

Sept 20: Catch up and calculator practice

Sept 22: Chpt 4: Structures of bonds, bonds at premium/discount

Sept 23: **Quiz 3;** book value of a bond, amortizing a bond

Sept 26: Chpt 4: callable bonds

Sept 27: Chpt 4: catch up and calculator practice

Sept 29: Chpt 5: Internal rate of return, net present value, dollar-weighted rate of return, time-weighted rate of return

Sept 30: **Test 2**

Oct 3: SOA study note: Macaulay duration

Oct 4: SOA study note: Modified duration

Oct 6: SOA study note: Macaulay convexity, modified convexity

Oct 7: **Quiz 4;**

Oct 10: **Final day 1**

Oct 11: **Final day 2**

Oct 13: Review Final

Grading

4 quizzes: each worth 10%

2 tests: each worth 15%

1 Final: 30%

Homework is assigned daily and must be turned in the following day. Homework is not graded, but any homework not passed in will result in a 1 point deduction from your final grade. Homework need not be perfect, but effort must be demonstrated.

A = 90% of all total points

B = 80% of all total points

C = 70% of all total points

You are responsible for tracking your projected grade if that is of concern to you.

Students with Disabilities

Students with classroom or testing needs are encouraged to contact the campus resource disabilityservices@wpi.edu or visit them in person at Daniels 124 or 137 or phone x-4908

See them as early as possible in the term should you require any special accommodations.

Academic Honesty:

The academic honesty policy is at: <http://www.wpi.edu/Pubs/Policies/Honesty/Students/>

You are encouraged to work to together to improve your understanding of material but all submitted work must represent your own understanding of the problem. You may be asked at any time, without notice, to reproduce submitted material on demand.