

Oakland University  
College of Arts and Sciences  
Department of Mathematics and Statistics  
Department of Economics

**Course:** ACS 4550: Financial Mathematics

3 credits

**Semester:** Winter 2018

**Instructor:** Theo Ogunyemi

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Office: 373 MSC

Office Phone: 2890

Class Time: TR 1:00 –2:47 PM

Office Hours: 12:15-12:45 pm TR (or, by appointment)

Class Meeting Room: 225 HH

**Course Description:** Topics include interest rate, annuities, amortization and sinking funds, bond valuation, and investment return.

**Corequisite:** MTH 2554 with a grade of 2.0 or better.

**Pre/Corequisite:** FIN 3550 or FIN 3720 with a grade of 2.0 or better

**Course Objectives:** The primary goal of the course is to help develop the student's understanding of fundamental concepts of financial mathematics, and how those concepts are applied to calculating present and accumulated values for various streams of cash flows as a basis for future use in reserving, valuation, pricing, and investment income. Overall the course emphasizes an intuitive treatment of the mathematics of finance based on the principle of Time Value of Money (TVM) with a particular focus on applications through a problem-solving platform.

**Required Textbooks and Supporting Materials:**

*Mathematics of Investment and Credit* by Samuel Broverman, published by Actex Academic Series, 6<sup>th</sup> Edition, (2015).

Copies of the textbooks will be available on 2-hour reserve at Kresge Library.

**Expectations of Students:** Attendance at every class is expected.

**Assessment and Evaluation:**

Students will be assessed by means of:

**Homework Assignments:** Students will be assigned weekly homework sets of problems from the textbook. The weekly homework assignments will be collected and graded.

Feedbacks will be given to the class on each returned assignment. The homework assignments will be designed to promote critical (financial) thinking and problem-solving skills in students.

**Speed-and-Accuracy Quizzes:** There will be weekly speed-and-accuracy quizzes.

The quizzes will be designed to promote quick and critical thinking, recognizing patterns and links and, most importantly, promote ability to recall definitions. Ability to recall definitions and financial terminology is a critical factor in learning mathematics. The quizzes will be conducted under a semi problem-solving workshop environment in the

classroom, and the workshop will serve as a simulation of the FM/2 Exam and in meeting the goals and objectives of a capstone course.

**Tests:** There will be two tests (worth 100 points each). All tests, including the final examination, are closed book, closed note. The dates of the two tests are **Thursday, February 15<sup>th</sup>** and **Thursday, April 5<sup>th</sup>**.

**Final Exam:** The final examination is comprehensive. It is worth 200 points. It will be given on **Tuesday, April 24<sup>th</sup>, from 12 noon–3 pm**. The room for the final exam will be announced prior to the exam.

**Grade Determination:**

**Grades will be based on:**

Definitions/Speed-and-Accuracy Quizzes	100 points
Homework Assignments	100 points
Test 1	100 points
Test 2	100 points
Final Exam	200 points

**Grading Scale:** The final grade in the course will be based on the total points earned out of 600 points. There is no fixed grading scale for this course. A conversion formula from your score to Oakland University grades will be determined at the end of the course. However, the following list shows the lowest possible grade that a given percentage score will earn (the grade may be higher than this): 95% → 4.0; 80% → 3.0; 65% → 2.0; 50% → 1.0.

**Make-up Policy:** There will be no make-up quizzes. If you miss a quiz and have a valid excuse, the average of your completed quizzes will be applied to the missed quiz. No more than one quiz can be missed. However, students with university properly excused absences due to participation in university related sport events, manager or student trainer in NCAA intercollegiate competitions, or participation as a representative of Oakland University at academic events and artistic performances approved by the Provost or designee will be given a make-up quiz.

**Calculator Policy:** For this course you will need a financial calculator that is compatible with the regulations of Society of Actuary. Ability to use financial calculators is an integral part of the course. You may use the calculator on all tests, and it is important to learn to use it effectively. *To receive full credit on tests, be sure to show all the work necessary for setting up a calculation before using the calculator.*

**Software Usage and Computer Lab:** Not Applicable

**Classroom Conduct Policy**

Use of cellular phones, surfing online, talking when the instructor is speaking, texting, sleeping or reading during class will not be allowed. Your use of cell phone during lectures will be treated as a serious distraction.

**Academic Conduct Policy:**

Cheating is a serious academic crime. Oakland University policy requires that all suspected instances of cheating be reported to the Academic Conduct Committee for adjudication. Any student found responsible of academic misconduct in the course may receive a course grade of 0.0 at the discretion of the instructor in addition to any penalty assigned by the Academic Conduct Committee. Working with others on homework assignments does not constitute cheating; handing in an assignment that has essentially been copied from someone else does. Receiving help from someone else or from unauthorized written materials during tests is cheating, so is using a calculator as an electronic "crib sheet."

**Special Considerations**

A student with a documented learning or physical disability should contact the Office of Disability and Support Services, 121 North Foundation Hall, (248) 370-3266, get a Faculty Notification Letter, and inform the instructor during the first week of classes of the approved accommodations.

USE OF A CELL PHONE OR BEING ON SOCIAL MEDIA DURING LECTURES IS NOT ALLOWED IN THIS CLASS.

**ACS 450 TENTATIVE SYLLABUS**  
**(subject to change)**

<u>Week</u>	<u>Topic</u>	<u>Text reference</u>
1	Interest Rates Measurement	Ch 1
2	Interest Rates Measurement	Ch 1
3	Interest Rates Measurement	Ch 1
4	Valuation of Annuities	Ch 2
5	Valuation of Annuities	Ch 2
6	Valuation of Annuities;	Ch 2
7	Valuation of Annuities	Ch 2
8	Loan Repayment	Ch 3
9	Loan Repayment	Ch 3
10	Bond Valuation	Ch 4
11	Bond Valuation	Ch 4
12	Bond valuation;	Ch4
13	Rate of Return of an Investment	Ch5
14	Rate of Return of an Investment; Other topics	Ch5

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**IMPORTANT DATES**

January 3	Classes begin 7:30 am
January 10-17	Second week of late registration – instructor permission is required to register/add class(es) in MySAIL
January 15	Martin Luther King, Jr. Day---No classes
	<b>Last day 100% tuition refund</b>
January 17	Last day to add a class
	Last day “no-grade” drop
January 18	<b>First day 0% tuition refund. First day grade of “W” assigned for drops</b>
February 17	Winter recess begins 10 p.m.
February 26	Classes resume 7:30 a.m.
March 14	Last day official withdrawal—full semester classes
April 17	Winter classes end 10:00 pm
<b>April 24 (Tuesday)</b>	<b>Final Examination, 12:00 – 3:00 pm</b>