

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



COURSE OUTLINE

COURSE TITLE:	Mathematics of Finance		
CODE NO. :	MTH114-4	SEMESTER:	One
PROGRAM:	Business, General Accounting		
AUTHOR:	Mathematics Department		
DATE:	August 2012	PREVIOUS OUTLINE DATED:	August 2011
APPROVED:	"B. Punch"		
		CHAIR	DATE
TOTAL CREDITS:	4		
PREREQUISITE(S):			
HOURS/WEEK:	4		

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I. COURSE DESCRIPTION:

This course develops the students' skills in computation of financial problems relating to business, in using interest formulae, and in forming accurate answers.

This course's goals are, first, to show that the mathematics does play a most important role in the development and understanding of the various fields of business and, second, to ensure that students acquire the mathematical and critical thinking skills necessary to analyze and solve business problems.

II. LEARNING OUTCOMES

Upon successful completion of this course, students will demonstrate the ability to:

Topic 1:

1. Construct time diagrams to assist in problem solving.
2. Manipulate the simple interest formulae to find the exact simple interest, principal, rate, time, or maturity value.
3. Compute equivalent values for specified focal dates.
4. Define and utilize the terms related to a promissory note.
5. Determine the maturity value of promissory notes.
6. Discount promissory notes using simple discount.

Topic 2:

1. Use the compound formula to compute future values.
2. Use the present value formula to compute present values.
3. Solve problems involving the use of equations of value.
4. Find the compound amount and discounted values for fractional compounding periods.
5. Compute nominal and effective interest rates, and number of conversion periods.

Topic 3:

1. Compute the future and present values of ordinary simple annuities.
2. Find the payment and the term of ordinary simple annuities.

II. LEARNING OUTCOMES (Continued):

Topic 4:

1. Compute the future and present values of ordinary general annuities.
2. Compute the future and present values of simple annuities due.
3. Compute the future and present values of general annuities due.
4. Compute the present value for deferred annuities.
5. Determine present value of deferred general annuities.
6. Find the present value of simple perpetuities.
7. Determine the present value of general perpetuities.
8. Find the periodic rent of ordinary general annuities, annuities due, deferred annuities, and perpetuities.

Topic 5:

1. Construct amortization schedules.
2. Make computations associated with amortization of debts to determine the periodic payments and outstanding balance.

Topic 6:

1. Determine the purchase price of bonds bought on an interest date.
2. Calculate the yield rate for bonds purchased on the market.
3. Construct sinking fund schedules.
4. Make computations associated with sinking funds to determine the periodic payments and accumulated balance.

III. TOPICS:

Topics to be Covered	Approximate Time Frame
1. Simple Interest and Promissory Notes	12 hours
2. Compound Interest	11 hours
3. Ordinary Annuities	8 hours
4. Other Annuities	12 hours
5. Amortization	6 hours
6. Bond Valuation and Sinking Funds	4 hours

IV. REQUIRED RESOURCES / TEXTS / MATERIALS:

1. Textbook: Hummelbrunner, S.A., & Coombs, K. S. (2009). *Mathematics of Finance with Canadian Applications with Math XL Student Access Kit*, 6th Edition Update. Toronto: Pearson Education Canada.
2. Calculator: (Recommended) SHARP Scientific Calculator EL-531(with fraction button "a b/c" as a primary function). *The use of some kinds of calculators, cell phones, and other electronic devices may be restricted during tests.*

V. EVALUATION PROCESS/GRADING SYSTEM:

There will be five tests each worth 20% of the final grade.

Test 1 will cover Topic 1.

Test 2 will cover Topic 2.

Test 3 will cover Topic 3.

Test 4 will cover Topic 4.

Test 5 will cover Topics 5 & 6.

The following semester grades will be assigned to students:

Grade	<u>Definition</u>	<i>Grade Point Equivalent</i>
A+	90 – 100%	4.00
A	80 – 89%	
B	70 - 79%	3.00
C	60 - 69%	2.00
D	50 – 59%	1.00
F (Fail)	49% and below	0.00
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field /clinical placement or non-graded subject area.	
U	Unsatisfactory achievement in field/clinical placement or non-graded subject area.	
X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.	
NR	Grade not reported to Registrar's office.	
W	Student has withdrawn from the course without academic penalty.	

VI. SPECIAL NOTES:Attendance:

Sault College is committed to student success. There is a direct correlation between academic performance and class attendance; therefore, for the benefit of all its constituents, all students are encouraged to attend all of their scheduled learning and evaluation sessions. This implies arriving on time and remaining for the duration of the scheduled session.

VII. COURSE OUTLINE ADDENDUM:

The provisions contained in the addendum located on the portal form part of this course outline.