THE SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

Sault College

COURSE OUTLINE

COURSE TITLE: Mathematics of Finance

CODE NO. : MTH114-4 **SEMESTER:** One

PROGRAM: Business
General Accounting

AUTHOR: Mathematics Department

DATE: August 2004 **PREVIOUS OUTLINE DATED:** August 2003

APPROVED:

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DEAN **DATE**

TOTAL CREDITS: 4

PREREQUISITE(S):

HOURS/WEEK: 4 hrs./week

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 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. Understand 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.
6. Find equated dates, equivalent rates and solve problems involving continuous compounding.

Topic 3:
1. Compute the amount and present value of ordinary simple annuities.
2. Compute the amount and present value of ordinary general annuities.

II. LEARNING OUTCOMES (Continued):

Topic 4:

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

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 or between interest dates.
2. Determine the premium or discount on the purchase of a bond.
3. Calculate the yield rate for bonds purchased on the market.
4. Construct sinking fund schedules.
5. 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	14 hours
3. Ordinary Annuities	8 hours
4. Other Annuities	14 hours
5. Amortization	6 hours
6. Bond Valuation and Sinking Funds	10 hours

IV. REQUIRED RESOURCES / TEXTS / MATERIALS:

1. Textbook: Mathematics of Finance, S. A. Hummelbrunner. (5th Edition) Prentice Hall
2. Calculator: *(Recommended)* SHARP Scientific Calculator EL-531. The use of some kinds of calculators 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	Definition	*Grade Point Equivalent*
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:

Special Needs:
If you are a student with special needs (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your professor and/or the Special Needs office. Visit Room E1101 or call Extension 703 so that support services can be arranged for you.

Retention of Course Outlines:
It is the responsibility of the student to retain all course outlines for possible future use in acquiring advanced standing at other postsecondary institutions.

Plagiarism:
Students should refer to the definition of "academic dishonesty" in *Student Rights and Responsibilities*. Students who engage in "academic dishonesty" will receive an automatic failure for that submission and/or such other penalty, up to and including expulsion from the course/program, as may be decided by the professor/dean. In order to protect students from inadvertent plagiarism, to protect the copyright of the material referenced, and to credit the author of the material, it is the policy of the department to employ a documentation format for referencing source material.

Course Outline Amendments:
The professor reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources.

Substitute course information is available in the Registrar's office.

VII. PRIOR LEARNING ASSESSMENT:

Students who wish to apply for advanced credit in the course should consult the professor. Credit for prior learning will be given upon successful completion of a challenge exam or portfolio.

VIII. DIRECT CREDIT TRANSFERS:

Students who wish to apply for direct credit transfer (advanced standing) should obtain a direct credit transfer form from the Dean's secretary. Students will be required to provide a transcript and course outline related to the course in question.