

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
2009

PREVIOUS OUTLINE DATED: August
2008

APPROVED: "B. Punch"

TOTAL CREDITS: **CHAIR**
4

PREREQUISITE(S):

HOURS/WEEK: 4 hrs./week

DATE

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School of Natural Environment/Outdoor Studies & Technology Programs

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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 dates.
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. *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%	3.00
B	70 - 79%	2.00
C	60 - 69%	1.00
D	50 – 59%	0.00
F (Fail)	49% and below	
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:

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.

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.

Prior Learning Assessment:

Students who wish to apply for advance credit transfer (advanced standing) should obtain an Application for Advance Credit from the program coordinator (or the course coordinator regarding a general education transfer request) or academic assistant. Students will be required to provide an unofficial transcript and course outline related to the course in question. Please refer to the Student Academic Calendar of Events for the deadline date by which application must be made for advance standing.

Credit for prior learning will also be given upon successful completion of a challenge exam or portfolio.

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

Disability Services:

If you are a student with a disability (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your professor and/or the Disability Services office. Visit Room E1101 or call Extension 2703 so that support services can be arranged for you.

Communication:

The College considers **WebCT/LMS** as the primary channel of communication for each course. Regularly checking this software platform is critical as it will keep you directly connected with faculty and current course information. Success in this course may be directly related to your willingness to take advantage of the **Learning Management System** communication tool.

Plagiarism:

Students should refer to the definition of "academic dishonesty" in *Student Code of Conduct*. A professor/instructor may assign a sanction as defined below, or make recommendations to the Academic Chair for disposition of the matter. The professor/instructor may (i) issue a verbal reprimand, (ii) make an assignment of a lower grade with explanation, (iii) require additional academic assignments and issue a lower grade upon completion to the maximum grade "C", (iv) make an automatic assignment of a failing grade, (v) recommend to the Chair dismissal from the course with the assignment of a failing grade. 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.

Student Portal:

The Sault College portal allows you to view all your student information in one place. **mysaultcollege** gives you personalized access to online resources seven days a week from your home or school computer. Single log-in access allows you to see your personal and financial information, timetable, grades, records of achievement, unofficial transcript, and outstanding obligations, in addition to announcements, news, academic calendar of events, class cancellations, your learning management system (LMS), and much more. Go to <https://my.saultcollege.ca>.

Electronic Devices in the Classroom:

Students who wish to use electronic devices in the classroom will seek permission of the faculty member before proceeding to record instruction. With the exception of issues related to accommodations of disability, the decision to approve or refuse the request is the responsibility of the faculty member. Recorded classroom instruction will be used only for personal use and will not be used for any other purpose. Recorded classroom instruction will be destroyed at the end of the course. To ensure this, the student is required to return all copies of recorded material to the faculty member by the last day of class in the semester. Where the use of an electronic device has been approved, the student agrees that materials recorded are for his/her use only, are not for distribution, and are the sole property of the College.

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.

Tuition Default:

Students who have defaulted on the payment of tuition (tuition has not been paid in full, payments were not deferred or payment plan not honoured) as of the first week of November will be removed from placement and clinical activities. This may result in loss of mandatory hours or incomplete course work. Sault College will not be responsible for incomplete hours or outcomes that are not achieved or any other academic requirement not met as of the result of tuition default. Students are encouraged to communicate with Financial Services with regard to the status of their tuition prior to this deadline to ensure that their financial status does not interfere with academic progress.