

**SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY**

**SAULT STE. MARIE, ONTARIO**



**COURSE OUTLINE**

**COURSE TITLE:** Business Mathematics II

**CODE NO. :** BCO 105                                  **SEMESTER:** Two

**PROGRAM:** Business, Accounting

**AUTHOR:** Mathematics Department

**DATE:** June 2016      **PREVIOUS OUTLINE DATED:**

**APPROVED:**                                  Sherri Smith                                  11/16

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**CHAIR**    **DATE**

**TOTAL CREDITS:** 4

**PREREQUISITE(S):**

**HOURS/WEEK:** 4

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**I. COURSE DESCRIPTION:**

In this course, students will develop their skills and understanding of business mathematics involving interest calculations, compound interest, annuities, loan financing, bonds and investment decision making.

**II. LEARNING OUTCOMES**

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

1. Identify the variables that are used in compound interest calculations for single cash flows and be able to perform calculations involving compound interest.
  - 1.1 Calculate interest rates and the number of compounding periods
  - 1.2 Compute future (maturity) values of investments
  - 1.3 Compute present values of future sums of money
  - 1.4 Discount long-term promissory notes
  - 1.5 Solve problems involving equivalent values
2. Identify the variables that are used to determine interest rates necessary to calculate compound interest scenarios.
  - 2.1 Determine the number of conversion periods and find equated dates
  - 2.2 Compute periodic and nominal rates of interest
  - 2.3 Compute effective and equivalent rates of interest
3. Identify the variable associated with ordinary simple annuity calculations and perform calculations with annuities.
  - 3.1 Distinguish between types of annuities based on term, payment date, and conversion period.
  - 3.2 Compute the future value for ordinary simple annuities
  - 3.3 Compute the present value for ordinary simple annuities
  - 3.4 Compute the payment for ordinary simple annuities
  - 3.5 Compute the number of periods for ordinary simple annuities
  - 3.6 Compute the interest rate for ordinary simple annuities
4. Identify the variables associated with ordinary general annuities and perform calculations with annuities.
  - 4.1 Compute the future value (or accumulated value) for ordinary general annuities

- 4.2 Compute the present value (or discounted value) for ordinary general annuities
  - 4.3 Compute the payment for ordinary general annuities
  - 4.4 Compute the number of periods for ordinary general annuities
  - 4.5 Compute the interest rate for ordinary general annuities
  - 4.6 Compute future value and present value for constant-growth annuities
5. Calculate annuities due, perpetuities and perpetuities due, and deferred perpetuities.
    - 5.1 Compute the future value, present value, periodic payment term, and interest rate for simple annuities
    - 5.2 Compute the future value, present value, periodic payment term, and interest rate for general annuities due
    - 5.3 Compute the future value, present value, periodic payment term, and interest rate for deferred annuities due
    - 5.4 Compute the present value, periodic payment, and interest rate for ordinary perpetuities, perpetuities due, and deferred perpetuities
6. Perform amortization calculations and develop amortization tables
    - 6.1 Describe the concept of amortization
    - 6.2 Prepare a complete amortization table and a partial amortization table
    - 6.3 Prepare a complete amortization table and a partial amortization table for general annuities
    - 6.4 Find the size of a payment when all payments except the final payment are equal in size
    - 6.5 Calculate the principal balance after any payment as well as the principal and interest components of any payment
7. Identify the variables dealing with bonds and perform calculations to determine the value of those variables.
    - 7.1 Determine the market price of a bond on any date
    - 7.2 Determine the premium or discount on the purchase of a bond
    - 7.3 Calculate the approximate yield rate for bonds bought on the open market
8. Identify cash inflows and outflows and use investment decision techniques for

decision making purposes (TIME PERMITTING).

- 8.1 Determine the discounted value of cash flows and choose among alternative investments on the basis of a discounted cash flow criterion
- 8.2 Calculate the net present value (NPV) of a capital investment (project) in order to determine if a project is feasible

### III. TOPICS:

1. Simple Interest
2. Compound Interest
3. Simple Annuities
4. General Annuities
5. Annuities Due and Perpetuities
6. Amortization
7. Bonds
8. Cash Inflows and Outflows

### IV. REQUIRED RESOURCES / TEXTS / MATERIALS:

1. Textbook: **Contemporary Business Mathematics with Canadian Applications**; Hummelbrunner, Halliday & Coombs, 10<sup>th</sup> Edition.
2. Calculator Required: Texas Instruments BAII Plus Financial Calculator. *The use of some kinds of calculators, cell phones, and other electronic devices may be restricted during tests.*

### V. EVALUATION PROCESS/GRADING SYSTEM:

Tests 80%

Assignments 20%

The following semester grades will be assigned to students:

Grade	Definition	Grade Point Equivalent
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	

U	non-graded subject area. 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.

If a faculty member determines that a student is at risk of not being successful in their academic pursuits and has exhausted all strategies available to faculty, student contact information may be confidentially provided to Student Services in an effort to offer even more assistance with options for success. Any student wishing to restrict the sharing of such information should make their wishes known to the coordinator or faculty member.

## 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:

### 1. Course Outline Amendments:

The faculty member reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources.

### 2. 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.

### 3. 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 Key Dates Calendar 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. Student Services can provide information regarding the Prior Learning Assessment and Recognition policy or it can be viewed on the student portal.

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

4. 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 announcements, news, academic calendar of events, class cancellations, your learning management system (LMS), and much more is available. Go to <https://my.saultcollege.ca>.
5. Communication:  
The College considers **Desire2Learn (D2L)** 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 this Learning Management System (LMS) communication tool.
6. Accessibility 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 the Accessibility Services office. Call Ext. 2703 or email [studentsupport@saultcollege.ca](mailto:studentsupport@saultcollege.ca) so that support services can be arranged for you.
7. Audio and Video Recording 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. Students with disabilities who require audio or visual recording devices in the classroom as an accommodation will receive approval from their counsellor once the Audio and Video Recording Devices in the Classroom Policy has been reviewed by the student. Recorded classroom instruction will be used only for individual academic use and will not be used for any other purpose. Recordings may only be used for individual study of materials presented during class and may not be published or distributed. Intentional misuse of audio and video recordings or intentional misrepresentation when requesting the use of a device for recording shall constitute a violation of this policy and laws protecting intellectual property.
8. Academic Dishonesty:  
Students should refer to the definition of “academic dishonesty” in the Student Code of Conduct. Students who engage in academic dishonesty will be issued a sanction under the Student Code of Conduct which could lead to and include expulsion from the course/program. In order to protect students from inadvertent plagiarism, to protect the copyright of the material referenced, and to credit the author of the material, students must use a documentation format for referencing source material.

9. Tuition Default:

Students who have defaulted on the payment of tuition) as of the first week of November (fall semester courses), first week of March (winter semester courses) or first week of June (summer semester courses) will be removed from placement and clinical activities due to liability issues. 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.