

I. COURSE DESCRIPTION: This course builds on the student's algebra skills and applies these skills in the context of business, life, and the social sciences. The topics of study include equations and inequalities, analysis of polynomial, rational, exponential, and logarithmic functions, systems of equations and inequalities, matrices, mathematics of finance, and introductory probability theory.

II. TOPICS:

1. Graphs, Equations, and Inequalities – 10 hours
2. Polynomials and Rational Functions – 11 hours
3. Exponential and Logarithmic Functions – 8 hours
4. Mathematics of Finance – 8 hours
5. Systems of Linear Equations and Matrices – 11 hours
6. Sets and Probability – 12 hours

III. LEARNING ACTIVITIES:

1.0	Graphs, Equations, and Inequalities	Pages	Exercises
1.1	Graphs	pp. 71-79	2.1 pp. 79-83
1.2	Equations of lines	pp. 83-92	2.2 pp. 92-95
1.3	Linear models	pp. 96-103	2.3 pp. 103-107
1.4	Quadratic equations	pp. 56-63	1.7 pp. 63-65
1.5	Linear inequalities	pp. 107-113	2.4 pp. 113-115
1.6	Polynomials and rational inequalities	pp.115-121	2.5 pp. 121-122
2.0	Polynomials and Rational Functions		
2.1	Functions	pp. 129-136	3.1 pp. 136-138
2.2	Graphs of functions	pp. 139-147	3.2 pp. 147-151
2.3	Applications of linear functions	pp. 151-159	3.3 pp. 159-163
2.4	Quadratic functions	pp. 163-168	3.4 pp. 168-170
2.5	Applications of quadratic functions	pp. 171-176	3.5 pp. 176-179
2.6	Polynomial functions	pp. 179-186	3.6 pp. 186-188
2.7	Rational functions	pp. 188-196	3.7 pp. 196-198
3.0	Exponential and Logarithmic Functions		
3.1	Exponential functions	pp. 205-212	4.1 pp. 212-215
3.2	Applications of exponential functions	pp. 215-219	4.2 pp. 219-222
3.3	Logarithmic functions	pp. 222-229	4.3 pp. 230-232
3.4	Logarithmic and exponential functions	pp. 232-239	4.4 pp. 239-242
4.0	Mathematics of Finance		
4.1	Simple interest and discount	pp. 249-254	5.1 pp. 254-256

4.2	Compound interest	pp. 256-265	5.2 pp. 265-267
4.3	Future value of an annuity and sinking funds	pp. 268-276	5.3 pp. 276-278
4.4	Present value of an annuity and amortization	pp. 278-284	5.3 pp. 285-287

5.0	Systems of Linear Equations	Pages	Exercises
5.1	Systems of linear equations	pp. 295-308	6.1 pp. 309-313
5.2	The Gauss-Jordan Method	pp. 314-322	6.2 pp. 322-324
5.3	Basic matrix operations	pp. 325-330	6.3 pp. 331-332
5.4	Matrix products and inverses	pp. 333-343	6.4 pp. 343-346
5.5	Applications of matrices	pp. 347-355	6.5 pp. 355-359
6.0	Sets and Probability		
6.1	Sets	pp. 441-449	8.1 pp. 450-451
6.2	Applications of Venn diagrams	pp. 451-458	8.2 pp. 458-461
6.3	Introduction to probability	pp. 461-467	8.3 pp. 467-469
6.4	Basic concepts of probability	pp. 469-476	8.4 pp. 476-480
6.5	Conditional probability and independent events	pp. 480-491	8.5 pp. 491-494
6.6	Permutations and combinations	pp. 521-531	9.2 pp. 531-534
6.7	Applications of counting	pp. 535-539	9.3 pp. 540-541
6.8	Markov chains	pp. 548-557	9.5 pp. 557-560

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

1. Mathematics with Applications, 9th Edition, Lial and Hungerford, Addison and Wesley Publishers
2. Calculator: SHARP Scientific Calculator EL-531W. ***The use of some kinds of calculators may be restricted during tests.***

V. EVALUATION PROCESS/GRADING SYSTEM:

ATTENDANCE

It is your responsibility to attend all classes during the semester. Research indicates there is a high correlation between attendance and student success.

If you are absent from class, it is your responsibility to find out what work was covered and assigned and to complete this work before the next class. Your absence indicates your acceptance of this responsibility.

Unexcused absence from a test may result in a mark of zero (“0”).
Absence may be excused on compassionate grounds such as verified illness or bereavement. On return from an excused absence, you should ask your instructor to schedule the writing of a make-up test. Failure to do so will be considered as an unexcused absence.

The following semester grades will be assigned to students:

METHOD OF ASSESSMENT (GRADING METHOD)

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 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.	

Course: MTH 654		
Evaluation Device	Topics Covered (reference topic numbers from the course outline)	% weight of Final Average
Weekly Quizzes		20%
Test 1	1,2	30%
Test 2	3,4	20%
Test 3	5,6	30%

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. Announcements, news, the academic calendar of events, class cancellations, your learning management system (LMS), and much more are also accessible through the student portal. 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