



DEPARTMENT OF SCIENCE

COURSE OUTLINE – FALL 2017

MA1130 (A2, B2): ELEMENTARY CALCULUS I– 3 (3-2-0) 75 Hours over 15 Weeks

INSTRUCTOR: Tom McLeister **PHONE:** (780) 539-2961

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OFFICE HOURS: TWRF 10:30 – 12:00

CALENDAR DESCRIPTION:

The course will include a review of analytic geometry; functions, limits, continuity; differentiation of elementary functions; applications to maxima, minima and rates; introduction to integration; Fundamental Theorem; numerical integration; and areas and other applications of the definite integral to areas.

PREREQUISITE: Mathematics 30-1 or equivalent

REQUIRED TEXT/RESOURCE MATERIALS:

Open (free) textbook at www.lyryx.com. Calculus: Early Transcendentals by David Guichard.

DELIVERY MODE(S):

Lecture:	13:00– 14:20	W F	J203
Seminar:	A2 14:30-16:20	R	J202
	B2 14:30-16:20	T	J202

COURSE OBJECTIVES:

This course is an introduction to calculus as a basic mathematical tool in solving optimization, rate of change and area problems. The objective of the course is to provide a basic knowledge of calculus and its applications.

LEARNING OUTCOMES:

At the end of this course, students should be able to...

- State the definition of a function and describe the various ways a function can be represented;
- Find the domain and range of a function;
- Identify and sketch standard algebraic, exponential, logarithmic, trigonometric and piecewise defined functions;
- Compose functions;
- Calculate limits of functions using the limit laws;
- Identify points or intervals where a function is continuous/discontinuous;
- Calculate derivatives of functions using the limit definition and the differentiation rules;
- Estimate the value of a function at a point using the tangent line (linear) approximation or differentials;
- Calculate derivatives implicitly and solve related rates problems;
- Sketch the graph of a function and indicate the extreme values, points of inflection, asymptotes, and intervals of concavity;
- Apply calculus to solve optimization problems;
- Calculate definite integrals using Riemann sums and the Fundamental Theorem of Calculus;
- Calculate definite and indefinite integrals using substitution;
- Use the definite integral to find the area between curves.

TRANSFERABILITY:

UA*, UC*, AU*, AF, CU, CUC, KUC, GMU (From the GPRC catalog)

***Warning:** Although we strive to make the transferability information in this document up-to-date and accurate, **the student has the final responsibility for ensuring the transferability of this course to Alberta Colleges and Universities.** Please consult the Alberta Transfer Guide for more information. You may check to ensure the transferability of this course at Alberta Transfer Guide main page <http://www.transferalberta.ca>.

**** Grade of D or D+ may not be acceptable for transfer to other post-secondary institutions. Students are cautioned that it is their responsibility to contact the receiving institutions to ensure transferability**

EVALUATIONS:

Assignments:	10%
Quizzes:	15%
Midterm:	25% (Fri. Oct. 20)
Final Exam:	50% (Cumulative and scheduled during exam period)

Note: There will be no make-up quizzes or exams. If a quiz/test is missed for a valid reason and proper documentation is provided, then the weight of the quiz/test will be transferred to another component. Late assignments will not be accepted.

GRADING CRITERIA: Please note that most universities will not accept your course for transfer credit **IF** your grade is **less than C-**.

Alpha Grade	4-point Equivalent	Percentage Guidelines	Alpha Grade	4-point Equivalent	Percentage Guidelines
A+	4.0	90-100	C+	2.3	67-69
A	4.0	85-89	C	2.0	63-66
A-	3.7	80-84	C-	1.7	60-62
B+	3.3	77-79	D+	1.3	55-59
B	3.0	73-76	D	1.0	50-54
B-	2.7	70-72	F	0.0	00-49

COURSE SCHEDULE/TENTATIVE TIMELINE:

Week	Topics/Text Sections	Notes
1. Aug. 30-Sept. 1	Precalculus Review 1.1, 1.2, 2.1, 2.2	First class: Wed. Aug. 30
2. Sept. 5-8	Precalculus Review 1.1, 1.2, 2.1, 2.2 Limits & Continuity 3.1, 3.3, 3.4, 3.6, 3.7	Mon. Sept. 4: Labour Day—no classes
3. Sept. 11-15		
4. Sept. 18-22		
5. Sept. 25-29	Differentiation 4.1-4.7, 2.3, 2.5	Monday Oct. 9: Thanksgiving— no classes
6. Oct. 2-6		
7. Oct. 10-13		
8. Oct. 16-20	Applications of Differentiation 5.1-5.4.1, 3.5, 5.6, 5.7	Fri. Oct 20: Midterm Wed. Oct. 25: Last day to withdraw
9. Oct. 23-27		
10. Oct. 30-Nov. 3		
11. Nov. 6-9	Integration Ch.6, 7.1	Nov.10,13: Fall Break/Remembrance Day: No classes
12. Nov. 14-17		
13. Nov. 20-24		
14. Nov. 27-Dec. 1	Applications of Integration 8.1, 8.2	
15. Dec. 4-7		Thurs. Dec. 7: Last Day of Classes
Dec. 9-19		Final Exams

STUDENT RESPONSIBILITIES:

Attend all lectures and seminars. If a lecture or seminar is missed, it is the student's responsibility to catch up on the material and obtain the missing lecture notes.

STATEMENT ON PLAGIARISM AND CHEATING:

Cheating and plagiarism will not be tolerated and there will be penalties. For a more precise definition of plagiarism and its consequences, refer to the Student Conduct section of the College Calendar at <http://www.gprc.ab.ca/programs/calendar/> or the College Policy on Student Misconduct: Plagiarism and Cheating at <https://www.gprc.ab.ca/about/administration/policies>

Note: all Academic and Administrative policies are available at www.gprc.ab.ca/about/administration/policies/

CALCULATORS: Use of calculators is not permitted on the quizzes or exams.

FINAL EXAM: The final exam will be written during the exam period, between December 9 and December 19 inclusive (including Saturdays and evenings). It is the student's responsibility to be available to write the exam at the scheduled time. Writing early is not permitted.