



**DEPARTMENT OF SCIENCE**  
**COURSE OUTLINE – WINTER 2019**  
**MA1130 (A3): ELEMENTARY CALCULUS I– 3 (3-2-0)**

**INSTRUCTOR:** Dr. Selcuk Aygin      **PHONE:** 780-539-2826

**OFFICE:** J206      **EMAIL:** [saygin@gprc.ab.ca](mailto:saygin@gprc.ab.ca)

**OFFICE HOURS:** R 13:00 – 14:30

**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](http://www.lyryx.com). Calculus: Early Transcendentals by David Guichard.

**DELIVERY MODE(S):**

Lecture:                    A3      8:30 – 9:50                    T-R                    J202

Seminar:                    A3      14:30-16:20                    M                    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:**

- Attendance            2% (BONUS, if attendance is more than 65%.)
- Tutorials                10% (Based on the work delivered in the tutorials.)
- 3 Tests                    40% (Each 13.3%, scheduled on **Jan 28, Mar 4 and Apr 1** in Seminar time.)
- Final Exam              50% (To be scheduled by the College)

Note: There will be no make-up tests or midterms. If a test/tutorial is missed for a valid reason and proper documentation is provided, then the weight of the missed test/tutorial will be equally distributed over the remaining tests/tutorials.

**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:** We will tentatively cover Chapters 1-6 and sections 7.1, 8.1 and 8.2 from the textbook.

**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/](http://www.gprc.ab.ca/about/administration/policies/)

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

**FINAL EXAM:** The final exam will be written during the exam period, between April 15 and April 27 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.