



DEPARTMENT OF SCIENCE  
COURSE OUTLINE – FALL 2019

**MA1130 (A2, B2): Elementary Calculus I – 3 (3-2-0) 75 Hours over 15 Weeks**

**INSTRUCTOR:** Dr. Mustafa Avci                      **PHONE:** 780-539-2008  
**OFFICE:** J206    **E-MAIL:** [mavci@gprc.ab.ca](mailto:mavci@gprc.ab.ca)  
**OFFICE HOURS:** TWRf 10:15-11:15

**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):**

Mode	Group	Time	Day	Classroom
Lecture	A2 & B2	13:00-14:20	Wednesday & Friday	J226
Seminar	A2	14:30-16:20	Thursday	J203
	B2	14:30-16:20	Tuesday	J203

**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.transferralberta.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:**

The final grade for this course is composed of the marks received for each of the following components:

Component	Percent /Weight	Notes
Assignments	10%	Collaborative group work
Worksheets	5%	Works delivered in the seminars
Quizzes	10%	On Wednesdays: Sept 25, Oct 16, Nov 27
Midterm	25%	Friday, Oct 25
Final Exam	50%	Dec 11-20 inclusive (including Saturdays and evenings)
<b>Total</b>	<b>100%</b>	

**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 Book Sections	Notes
1 <sup>st</sup> Sept. 4-6	Precalculus Review 1.1, 1.2, 2.1, 2.2	First class: Wed., Sept. 4
2 <sup>nd</sup> Sept. 9-13		
3 <sup>rd</sup> Sept. 16-20	Limits & Continuity 3.1, 3.3-3.7	
4 <sup>th</sup> Sept. 23-27		
5 <sup>th</sup> Sept. 30 - Oct. 4	Differentiation 4.1-4.7, 2.3, 2.5	
6 <sup>th</sup> Oct. 7-11		
7 <sup>th</sup> Oct. 14-18		

8 <sup>th</sup> Oct. 21-25	Applications of Differentiation 5.1-5.4.2, 5.6, 5.7	Wed. Oct 23: Midterm Nov. 8: Fall Break/No classes
9 <sup>th</sup> Oct. 28 - Nov.1		
10 <sup>th</sup> Nov. 4-8		
11 <sup>th</sup> Nov. 11-15	Integration 6.1-6.3, 7.1	Nov. 11,12: Fall Break/Remembrance Day: No classes
12 <sup>th</sup> Nov. 18-22		
13 <sup>th</sup> Nov. 25-29		
14 <sup>th</sup> Dec. 2-6	Applications of Integration 8.1, 8.2	Monday, Dec. 9: Last day of classes
Dec. 11-20	<b>Final Exam</b>	Scheduled by the Office of the Registrar

### STUDENT RESPONSIBILITIES:

Students are responsible for all lecture material, seminars and readings. Students are expected to practice the material by doing problems from the textbook. **No late worksheets will be accepted. Quizzes cannot be made up if missed. If the midterm is missed** due to illness the weight will be put on the final (i.e. the final will be worth 75%). **If the final is missed** due to illness it will be deferred (see calendar for information). A doctor's note and a phone message or email will be required in all cases.

Cellphone use is not permitted in the classroom. This includes texting. Please turn off and put away your cellphone during class. You may be asked to leave the classroom if using a cellphone.

No recording of any kind is allowed in the class, seminar or during consultation with the instructor.

**Final Exam:** The final exam will be written during the exam period, **between December 11 and December 20 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.

**No calculators or formula sheets are allowed on quizzes, midterms or the final exam.**

### 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 the same page.