



DEPARTMENT OF SCIENCE

COURSE OUTLINE – FALL 2016

MA1130 A2/B2: Elementary Calculus I – 3 (3-2-0) UT

75 Hours for 15 Weeks

INSTRUCTOR: Dr. Brian Redmond
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OFFICE HOURS: T/R 10-11:30 AM

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): This is a lecture based course.

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;
- Identify and sketch standard algebraic, exponential, logarithmic, trigonometric and piecewise defined functions;
- Find the domain and range of a function;
- Apply transformations of functions (shift, stretch and reflect) and combine functions by the standard arithmetic operations;
- 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, vertical, horizontal and oblique 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 tables of integrals and substitution;
- Use the definite integral to find the area between curves.

TRANSFERABILITY:

University of Alberta *, University of Calgary *, University of Lethbridge *, Athabasca University *
 Augustana Faculty, University of Alberta *, Concordia University College, Canadian University
 College, Grant MacEwan University, King's University College.
 Other (transfers in combination with other courses or to other institutions)

***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> or, if you do not want to navigate through few links, at <http://alis.alberta.ca/ps/tsp/ta/tbi/onlineSearch.html?SearchMode=S&step=2>

** 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:

- Worksheets 10%
- Online homework 5%
- Quizzes 10%
- Midterm 25%
- Final Exam (cumulative) 50%

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	95-100	C+	2.3	66-69
A	4.0	90-94	C	2.0	62-65
A-	3.7	85-89	C-	1.7	58-61
B+	3.3	80-84	D+	1.3	55-57
B	3.0	75-79	D	1.0	50-54
B-	2.7	70-74	F	0.0	00-49

COURSE SCHEDULE/TENTATIVE TIMELINE:

Week 1	Aug. 31-Sept. 2	Wed. Aug. 31 first day of class
Week 2	Sept. 5-9	Mon. Sept. 5 Labour Day – College closed
Week 3	Sept. 12-16	
Week 4	Sept. 19-23	
Week 5	Sept. 26-30	
Week 6	Oct. 3-7	
Week 7	Oct. 10-14	Mon. Oct. 10 Thanksgiving Day – College closed
Week 8	Oct. 17-21	Fri. Oct 21 – Midterm Exam
Week 9	Oct. 24-28	Wed. Oct. 26 Last day to withdraw with permission
Week 10	Oct. 31-Nov. 4	
Week 11	Nov. 7-11	Nov 10/11 Fall break/Remembrance Day
Week 12	Nov. 14-18	
Week 13	Nov. 21-25	
Week 14	Nov. 28-Dec. 2	
Week 15	Monday, Dec. 5	Last day of classes
Final Exam Period	Dec. 7-16	

STUDENT RESPONSIBILITIES: Regular attendance and participation (including homework) is required for the successful completion of this course. Assignments must be handed in on time, and tests/exams must be written on the days announced in class. If an emergency prevents a student from writing a test/exam on the scheduled day, the student must contact the instructor immediately to make other arrangements. Otherwise, the student will receive a zero grade for that component of the course.

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 Admission Guide at <http://www.gprc.ab.ca/programs/calendar/> or the College Policy on Student Misconduct: Plagiarism and Cheating at <http://www.gprc.ab.ca/about/administration/policies/>

**Note: all Academic and Administrative policies are available on the same page.