GPRC

DEPARTMENT OF SCIENCE

COURSE OUTLINE – WINTER 2016

MA1130 A3/B3: Elementary Calculus I – 3 (3-2-0)
75 Hours for 15 Weeks

INSTRUCTOR:	Dr. Brian Redmond	**PHONE:**	780-539-2093
OFFICE:	J206	**E-MAIL:**	bredmond@GPRC.ab.ca

OFFICE HOURS: M/W 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(S)/COREQUISITE: Mathematics 30-1 or equivalent

REQUIRED TEXT/RESOURCE MATERIALS:
Single Variable Calculus, Seventh Edition, by James Stewart

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)

* An asterisk (*) beside any transfer institution indicates important transfer information. Consult the Alberta Transfer Guide (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:

- Worksheets   15%
- 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	Jan. 4-8	Jan. 6 first day of class
Week 2	Jan. 11-15	
Week 3	Jan. 18-22	
Week 4	Jan. 25-29	
Week 5	Feb. 1-5	
Week 6	Feb. 8-12	
Week 7	Feb. 15-19	Winter Break, no classes
Week 8	Feb. 22-26	
Week 9	Feb. 29-Mar. 4	**Midterm, Tuesday, March 1**
Week 10	Mar. 7*-11	
Week 11	Mar. 14-18	
Week 12	Mar. 21-25**	
Week 13	Mar. 28-Apr. 1	
Week 14	Apr. 4-8	
Week 15	Apr. 11-13	Apr. 13 last day of classes
Final Exam Period	Apr. 15-26	

*Last day to withdraw
**Good Friday, no classes

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.