UNIVERSITY OF THE FRASER VALLEY

OFFICIAL UNDERGRADUATE COURSE OUTLINE (page 1)

COURSE IMPLEMENTATION DATE: September 1993
COURSE REVISED IMPLEMENTATION DATE: January 2011
COURSE TO BE REVIEWED: September 2009
(four years after UPAC approval) *(month, year)*

OFFICIAL UNDERGRADUATE COURSE OUTLINE INFORMATION

Students are advised to keep course outlines in personal files for future use.
Shaded headings are subject to change at the discretion of the department – see course syllabus available from instructor

MATH 110	SCIENCE/MATHEMATICS & STATISTICS	4
COURSE NAME/NUMBER	FACULTY/DEPARTMENT	UFV CREDITS

PRE-CALCULUS MATH
COURSE DESCRIPTIVE TITLE

CALENDAR DESCRIPTION: This course is required for students who intend to study calculus and who have not obtained a mark of at least a B in Principles of Math 12 or equivalent.
MATH 110 is intended to give students an opportunity to develop the mathematics they have seen in high school and progress into a successful completion of first-year calculus. In particular, it is meant to help students strengthen their basic algebraic skills, to re-examine functions including rational, exponential, logarithmic, trigonometric, and inverse functions, and to provide a general introduction to the instantaneous rate of change as studies in calculus. Practical applications are emphasized. As the use of technology can greatly facilitate the study of mathematics, students will require a graphing calculator.
Note: Students may receive credit for only one of MATH 094/095, MATH 110, or MATH 140.

PREREQUISITES: One of the following: C or better in one of Principles of Math 12 or Precalculus 12; or C- or better in both MATH 094 and MATH 095; or C+ or better in Applications of Math 12; or at least 55% on the MDPT.

COREQUISITES:
PRE or COREQUISITES:

SYNONYMOUS COURSE(S):
(a) Replaces:
(b) Cross-listed with:
(c) Cannot take: MATH 094/095, MATH 140 for further credit.

SERVICE COURSE TO: *(department/program)*

TOTAL HOURS PER TERM: 75

STRUCTURE OF HOURS:

Lectures:	**75**	Hrs
Seminar:		Hrs
Laboratory:		Hrs
Field experience:		Hrs
Student directed learning:		Hrs
Other (specify):		Hrs

TRAINING DAY-BASED INSTRUCTION:
Length of course:
Hours per day:

OTHER:
Maximum enrolment: **36**
Expected frequency of course offerings: Fall & Winter
(every semester, annually, every other year, etc.)

WILL TRANSFER CREDIT BE REQUESTED? (lower-level courses only)	☒ Yes	☐ No
WILL TRANSFER CREDIT BE REQUESTED? (upper-level requested by department)	☐ Yes	☐ No
TRANSFER CREDIT EXISTS IN BCCAT TRANSFER GUIDE:	☒ Yes	☐ No

Course designer(s): **Calculus Group**

Department Head:	**Greg Schlitt**	Date approved:	**September 1, 2010**
Supporting area consultation (Pre-UPAC)		Date of meeting:	**September 17, 2010**
Curriculum Committee chair:	**Norm Taylor**	Date approved:	**September 24, 2010**
Dean/Associate VP:	**Ora Steyn**	Date approved:	**October 21, 2010**
Undergraduate Program Advisory Committee (UPAC) approval		Date of meeting:	**October 29, 2010**

LEARNING OUTCOMES:

The course is meant to provide students with a deeper understanding of the concepts and techniques necessary for a successful study of calculus. Work progresses at a pace which provides a good preparation for the pace of first-year calculus.

Upon successful completion of this course, students will be able to:

1. demonstrate basic algebraic skills, especially those most frequently required in the study of calculus,
2. demonstrate proficiency with function notation,
3. use technology to explore mathematical concepts,
4. explain the graphs and properties of the basic functions used in calculus (power, rational, exponential, logarithmic, trigonometric, inverse functions), and
5. apply the basic functions to practical situations, translating from English to mathematics and back again.

METHODS: *(Guest lecturers, presentations, online instruction, field trips, etc.)*

Lectures are interspersed with problem sessions; evaluation includes assignments, midterms, and a three-hour comprehensive final. Graphing calculators will be used throughout.

METHODS OF OBTAINING PRIOR LEARNING ASSESSMENT RECOGNITION (PLAR):

☐ Examination(s) ☐ Portfolio assessment ☐ Interview(s)

☒ Other (specify): Please check online at http://www.ufv.ca/math/challenge.htm for the departmental challenge policy

☐ PLAR cannot be awarded for this course for the following reason(s):

TEXTBOOKS, REFERENCES, MATERIALS: *[Textbook selection varies by instructor. Examples for this course might be:]*

The textbook is chosen by a departmental curriculum committee. Recent texts include:

Connally, Hughes, Hallett, Gleason, et al. 2000. Functions Modeling Change. Wiley.
Stewart, Redlin, Watson. 1998. Precalculus. Third edition. Brooks/Cole.

SUPPLIES / MATERIALS:

A graphing calculator (without a computer algebraic system) is required.

STUDENT EVALUATION: *[An example of student evaluation for this course might be:]*

The weighting of the various components may vary from instructor to instructor and from year to year, although there must two midterms, and the comprehensive final exam must be worth from 30% to 50% of the final grade.
An example of student evaluation for this course:

Quizzes/assignments	20%
Midterm exams	40%
Final exam	40%

Students must achieve at least 40% on the final exam in order to receive credit for this course.

COURSE CONTENT: *[Course content varies by instructor. An example of course content might be:]*

Exact course content and ordering may vary slightly from year to year but will encompass the following:

1. Review of basic algebra.
2. Algebraic equations and inequalities.
3. Functions and graphs, including mathematical notation and language, and the use of functions to relate a mathematical equation to sintuations encountered in life.
4. Polynomial and rational functions.
5. Inverse functions: finding them graphically and algebraically, understanding their uses.
6. Exponential and logarithmic functions, including applications such as population growth, radioactive decay, the spread of pollution.
7. Trigonometric functions and their relationship to periodic phenomena such as ocean tides, human physiology.
8. Analytic trigonometry
9. Sequences, series, inductions, as time permits.
10. Introduction to the instantaneous rate of change.