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**Course Name:**

Precalculus

**Effective Date:**

May 2019

**School/Centre:**

Arts & Sciences

**Department:**

UT Math (2017)

**Banner Course Name:**

Precalculus

**Subject Code:**

MATH - Mathematics

**Course Number**

1020

**Year of Study**

1st Year Post-secondary

**Credits:**

3

**Course Description:**

Math 1020 is intended to prepare students to take calculus for science, engineering, business, commerce and social programs. Emphasis is placed on the extensive study of polynomial, rational, exponential, logarithmic, trigonometric functions and their inverses.

**Course Pre-Requisites (if applicable):**

Pre-calculus Mathematics 12 with a C-; or VCC MATH 0983 and MATH 0993 both with a C -; or Precalculus Mathematics 11 with a B; or Foundations Mathematics 11 with a B; or VCC MATH 0861 and MATH 0871 both with a B; or VCC Math Precalculus Assessment test with a 60%.

**Course Co-requisites (if applicable):**

PLAR (Prior Learning Assessment & Recognition)

No

### Course Learning Outcomes (CLO):

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

CLO #1	Perform, analyze and create transformations of functions and relations that are described by equations or graphs.
CLO #2	Graph polynomial, rational, exponential, logarithmic and trigonometric functions.
CLO #3	Solve polynomial, rational, exponential, logarithmic and trigonometric equations.
CLO #4	Prove trigonometric identities.
CLO #5	Analyze trigonometric functions and inverse trigonometric functions.
CLO #6	Formulate mathematical models using the various functions described in the course.
CLO #7	Explore and solve application problems using transcendental functions.
CLO #8	Explore and solve polynomial, rational and transcendentals problems using technology.

### Instructional Strategies:

Lectures coupled with graphing techniques using software. For the online option, the learning environment will include self-directed learning and collaborative learning through problem solving.

## Evaluation and Grading

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### Grading System:

Letter Grade (A-F)

### Passing grade:

D

### Evaluation Plan:

Type	Percentage	Brief description of assessment activity
Assignments	30	Written, multiple choice and short answer problems.
Midterm Exam	35% (Class based)/25% (Online)	Written, multiple choice and short answer problems.
Participation	0% (Class based)/10% (Online)	Online: Weekly or biweekly challenging and real-life application problems, assessing student participation, professional communication, relevance of information and critical thinking skills.
Final Exam	35	Online: at least 50% on the Final Exam is required to pass the course. Final Exam is required to be written in-person.

## Hours by Learning Environment Type

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Lecture, Seminar, Online

60

Lab, Clinical, Shop, Kitchen, Studio, Simulation

Practicum

Self Paced / Individual Learning

### Course Topics

#### Course Topics:

Fundamental Concepts of Algebra (review)

Graph, Functions and Models:

graphs and graphing utilities; lines and slopes; distance and midpoint formulas; circles; basics of functions; graphs of functions; transformations of functions; combinations of functions; composite functions; inverse functions.

Polynomial and Rational Functions:

quadratic functions, polynomial functions and their graphs; dividing polynomials; remainder and factor theorems; rational functions and their graphs; polynomial and rational inequalities.

Exponential and Logarithmic Functions:

exponential functions, logarithmic functions, properties of logs; exponential and logarithmic equations.

Trigonometry:

angles and their measures; the unit circle; right triangle trigonometry; trigonometric functions of any angle; graphs of sine and cosine functions; graphs of other trigonometric functions; inverse trigonometric functions; verifying trigonometric identities; sum and difference formulas; double angle and half-angle formulas; trigonometric equations; law of sines and cosines.

**Program and course contents and descriptions, offerings and schedules are subject to change without notice.**

#### Resource Material(s):

Resources are items in addition to tuition that the student is responsible for purchasing. Course resource information will be supplied by the department/instructor.

#### VCC Education and Education Support Policies

There are a number of **Education** and **Education Support** policies that govern your educational experience at VCC, please familiarize yourself with them.

The policies are located on the VCC web site at <https://www.vcc.ca/about/governance--policies/policies>.

**To find out how this course transfers, visit the BC Transfer Guide at <https://www.bctransferguide.ca>.**

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#### Downtown campus

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