UNIVERSITY OF THE FRASER VALLEY

ORIGINAL COURSE IMPLEMENTATION DATE: September 2017
REVISED COURSE IMPLEMENTATION DATE: September 2026
COURSE TO BE REVIEWED (six years after UEC approval)**:** December 2031
Course outline form version: 29/08/2024

OFFICIAL UNDERGRADUATE COURSE OUTLINE FORM

Note: The University reserves the right to amend course outlines as needed without notice.

Course Code and Number: MATH 123	**Number of Credits:** 3 Course credit policy (105)
Course Full Title: Everyday Math and Stats **Course Short Title:** Everyday Math & Stats	
Faculty: Faculty of Science	**Department/School:** Mathematics & Statistics

Calendar Description:

Designed for Arts and General Studies students, and anyone interested in the beauty and practical applications of mathematics and statistics in daily life. Critical thinking, problem solving, models of growth, everyday geometry, rates and percentages, normal distribution, linear regression, and personal finance are covered.

Prerequisites (or NONE):	One of the following: (C or better in one of Applications of Mathematics 11, Foundations of Mathematics 11, Principles of Mathematics 11, Pre-calculus 11, Apprenticeship Mathematics 12, Calculus 12, Geometry 12, Statistics 12, or MATH 085) or (B or better in one of History of Mathematics 11, Workplace Mathematics 11, or Apprenticeship and Workplace Mathematics 12) or (one of Applications of Mathematics 12, Foundations of Mathematics 12, Principles of Mathematics 12, or Pre-calculus 12) or (any MATH or STAT course numbered 092 or higher) or (a score of 17/25 or higher on Part A of the MSAT) or (45 university-level credits).
Corequisites (if applicable, or NONE):	
Pre/corequisites (if applicable, or NONE):	

Antirequisite Courses *(Cannot be taken for additional credit.)*

Former course code/number:

Cross-listed with:

Equivalent course(s):

(If offered in the previous five years, antirequisite course(s) will be included in the calendar description as a note that students with credit for the antirequisite course(s) cannot take this course for further credit.)

Typical Structure of Instructional Hours

Lecture/seminar	40
Supervised laboratory hours (computer lab)	10
Total hours	**50**

Scheduled Laboratory Hours

Labs to be scheduled independent of lecture hours: **No**

Course Details

Special Topics course: **No**

(If yes, the course will be offered under different letter designations representing different topics.)

Directed Study course: **No**

(See policy 207 for more information.)

Grading System: **Letter grades**

Delivery Mode: **May be offered in multiple delivery modes**

Expected frequency: **Annually**

Maximum enrolment (for information only)**:36**

Prior Learning Assessment and Recognition (PLAR)

PLAR is available for this course.

Transfer Credit *(See bctransferguide.ca.)*

Transfer credit already exists: **No**

Submit outline for (re)articulation: **Yes**

(If yes, fill in transfer credit form.)

Department approval	**Date of meeting:**	September 22, 2025
Faculty Council approval	**Date of meeting:**	October 31, 2025
Undergraduate Education Committee (UEC) approval	**Date of meeting:**	December 19, 2025

Learning Outcomes *(These should contribute to students' ability to meet program outcomes and thus Institutional Learning Outcomes.)*

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

1. Analyze arguments and construct counterexamples to invalid arguments.
2. Apply problem solving strategies.
3. Estimate calculations to roughly judge the value of a quantity.
4. Evaluate rates, proportions and percentages.
5. Model data with linear, quadratic, exponential, and logarithmic functions.
6. Differentiate between basic geometric concepts (point, line, plane).
7. Identify geometric measures (length, area, volume, angle).
8. Calculate basic probabilities.
9. Display, summarize, analyze, and interpret statistical data.
10. Calculate descriptive statistics.
11. Find correlation and apply linear regression model to a given set of data.
12. Calculate simple and compound interest, and present and future values for investments.
13. Calculate monthly payments, mortgages, and loans.
14. Apply the above skills and tools to model real-world situations and phenomena to make predictions and sound decisions.

Recommended Evaluation Methods and Weighting *(Evaluation should align to learning outcomes.)*

Final exam:	40%	Assignments:	10%		%
Quizzes/tests/midterm:	40%	Project:	10%		%

Details:

Project includes a poster/infographic and presentation at instructor discretion. In order to pass the course, a student must achieve 40% or higher on the final exam.

NOTE: The following sections may vary by instructor. Please see course syllabus available from the instructor.

Typical Instructional Methods *(Guest lecturers, presentations, online instruction, field trips, etc.)*

Lectures, presentations, online text support; may be team-taught by a mathematician and statistician.

Texts and Resource Materials *(Include online resources and Indigenous knowledge sources. Open Educational Resources (OER) should be included whenever possible. If more space is required, use the Supplemental Texts and Resource Materials form.)*

	Type	Author or description	Title and publication/access details	Year
1.	Book	K. Denley & M. Hall	Viewing Life Mathematically: A Pathway to Quantitative Literacy	2023
2.	Book	J.I. Brown	Mathematics for the Liberal Arts	2015
3.				
4.				
5.				

Required Additional Supplies and Materials *(Software, hardware, tools, specialized clothing, etc.)*

Graphing software (e.g., Desmos), spreadsheet software (e.g., Excel), statistical software (e.g., Minitab). Software choices will be freely available to students.

Course Content and Topics

1. Critical thinking and problem solving:
   a. Thinking mathematically
   b. Problem-solving processes and techniques
   c. Estimating, evaluating, and interpreting information

2. Rates, ratios, proportions, and percentages:
   a. Rates and unit rates
   b. Proportions, ratios
   c. Absolute and percentage changes
   d. Unit conversions (e.g., currency, mileage, weight)

3. Mathematics of growth: models and predictions
   a. The language of functions
   b. Linear growth
   c. Quadratic models
   d. Exponential growth (and decay, e.g., depreciation)

e. Logarithmic growth.

4. Everyday geometry:
   a. Lines, planes, angles
   b. Similar triangles
   c. Parallel and perpendicular lines
   d. Distances, areas, volumes (including perimeter, surface area)

5. Probability and statistics:
   a. Collecting and displaying data with graphs and charts
   b. Describing and analyzing data - calculating means, medians, and standard deviations
   c. Calculate basic probabilities
   d. The normal distribution
   e. Linear regression and correlations

6. Personal finance:
   a. Understanding personal finance
   b. Understanding simple and compound interest
   c. Savings and retirement funds
   d. Borrowing, mortgages, and loans

7. As time permits, an optional topic to be chosen from the following:
   a. Sports statistics
   b. Graph theory (trees, matchings, networks)
   c. Number theory (prime numbers, modular arithmetic, cryptography)
   d. Mathematics in art (planar symmetries, tilings, isometries)
   e. Voting and social choice (fairness, apportionment, weighted voting systems)

Students will create a poster/infographic and give a presentation on an interesting topic of their choice. Some examples of topics related to issues in Mathematics or Statistics include:

- Mathematics in architecture
- Mathematics in art (sculpture, textiles, different geometries)
- Famous math problems (math in the news, e.g., twin prime conjecture, Fermat's Last Theorem)
- Mathematics in nature (e.g., fractal geometry)
- Mathematics and music (harmonies, ratios, logarithms, and musical intervals)
- Indigenous mathematics (patterns in art and weaving, 8way math, drum making)
- Game theory (probability, expectation)
- Opinion polls and sampling (margin of error, 19 times out of 20 confidence level)
- Design of experiments (placebo effect, double-blind tests)
- Sports statistics
- Voting and apportionment
- Statistical analysis of a data set (e.g., from Stats Canada) relevant to a current issue