



MATH-101 – Finite Mathematics 1

University Arts and Science

Effective Term & Year: Fall 2025
Course Outline Review Date: 2030-04-01

Program Area: Math and Sciences

Description:

This course is intended for students who require an appreciation of higher mathematics, but do not require calculus. MATH 101 stresses a logical and critical thinking approach while investigating the following topics: an introduction to matrices and to linear algebra; linear programming and the Simplex method; set theory, counting techniques and probability; introduction to statistics; and Markov Processes.

Program Information:

MATH 101 is often taken by students working towards a B.A. or a B.Ed. It can be used as the math credit in an Associate of Arts degree or an Arts certificate, or it can be used as elective credit towards a Science certificate or degree. MATH 101 can be used as a math credit for a Business Administration certificate, diploma or degree and is considered to be very good preparation for the study of statistics (STAT 106) and/or quantitative methods (ACCT 369).

Delivery Methods: On-campus (Face-to-Face), Online

Credit Type: College of the Rockies Credits

Credits: 3

Course type/s: Sciences

Instructional Activity and Hours:

Activity

Hours

Classroom, Directed Studies or Online Instruction	45
Seminar/Tutorials	
Laboratory/Studio	
Practicum/Field Experience	
Co-op/Work Experience	
Other	
Total	45

Course Requisites:

- Complete 1 of the following
 - Earned a minimum grade of C+ (65%) in at least 1 of the following:
 - FOM 11 – Foundations of Mathematics 11
 - PREC 11 – Pre-Calculus 11
 - MATH080 – Mathematics – Advanced Level
 - FOM 12 – Foundations of Mathematics 12
 - PREC 12 – Pre-Calculus 12
 - CALC 12 – Calculus 12
 - MATH090 – Mathematics – Provincial Level
 - Earned a minimum grade of C+ (65%) in each of the following:
 - STAT 12 – Statistics 12
 - CS 12 – Computer Science 12

Prior Learning and Recognition: Yes

Students are able to request formal recognition of their prior learning or experience outside the classroom. Challenge examination, portfolio-assisted assessment, work-based assessment or a combination of assessments that is appropriate to identify, assess, and recognize prior skills, competencies, and knowledge to achieve course credit. Tuition fees apply, refer to Policy 2.5.5 [Prior Learning Assessment and Recognition \(PLAR\)](#) or contact an education advisor for more information.

Course Transfer Credit:

For information about receiving transfer credit for courses taken at either British Columbia or Alberta institutions, please see <https://www.bctransferguide.ca/> or <https://transferalberta.alberta.ca> . For more transfer credit information, please visit <https://www.cotr.bc.ca/Transfer>

All requests for course transfer credit from institutions in British Columbia or elsewhere should go to the College of the Rockies Enrolment Services office.

Textbook Resources:

Textbook selection varies by instructor and may change from year to year. At the Course Outline Effective Date the following textbooks were in use:

Required: Goldstein, Schneider and Siegel (2017), *Finite Mathematics & Its Applications*, 12TH Edition, New Jersey: Pearson Prentice Hall

Optional: Goldstein, Schneider and Siegel (2017) *Student Solution Manual*, 12TH Edition, New Jersey: Pearson Prentice Hall

Please see the instructor's syllabus or check COTR's online text calculator <https://textbook.cotr.bc.ca/> for a complete list of the currently required textbooks.

Learning Outcomes:

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

- employ a variety of formal problem solving methods and reflect on the usefulness of mathematics by reading about, interpreting, and finding applications for the concepts studied;
- examine, strengthen, and formalize the methods of approaching mathematical problem solving;
- solve systems of linear equations in any number of variables, using Gauss-Jordan elimination and matrix inverses;
- add, subtract, multiply, pivot, and invert matrices;
- write, interpret, and solve matrix systems to represent input-output analysis problems;
- find optimal solutions to linear programming problems using the graphical method, the Simplex method, and Duality;
- calculate the number of permutations, combinations, and partitions of given objects, and understand the conceptual differences between these methods of counting;
- utilize the laws of counting, question basic assumptions about numbers, use the language of sets, and be able to articulate and solve probability problems using these concepts;
- calculate and interpret basic descriptive statistical data;
- identify, define characteristics of, and apply the Normal, Poisson, and Binomial probability distributions;
- understand the basic concepts of Markov Processes; and
- find the stable distribution for both Regular and Absorbing Markov processes;

Course Topics:

- Linear Equations and Systems of Linear Equations
- Simple Matrix Algebra
- Linear Programming, both geometric and using the Simplex method
- Marginal Analysis and Duality
- Set theory and Counting Techniques
- Probability
- A Brief Introduction to Statistics
- Regular and Absorbing Markov Processes

See instructor's syllabus for the detailed outline of weekly readings, activities and assignments.

Evaluation and Assessments

Assessment Type: On-Campus (face-to-face) and Online, or Hybrid

Assessment Type	% of Total Grade
Assignments	20% – 35%
Midterms	20% – 35%
Final Exam	30% – 50%
Total	100%

Grade Scheme

A+	A	A-	B+	B	B-	C+	C	C-	D	F
>=90	89-85	84-80	79-76	75-72	71-68	67-64	63-60	59-55	54-50	<50

Evaluation Notes: A grade of "D" grants credit, but may not be sufficient as a prerequisite for sequential courses.

Evaluation Notes Comments:

Please see instructor's syllabus for assessment values.

Exam Attendance:

Students must attend all scheduled exams at the appointed time and place. Instructors may approve an alternate exam to accommodate an illness or personal crisis. Department heads will consider other written requests. Any student who misses a scheduled exam without prior approval will receive a "0" on the exam.

Academic Policies:

College of the Rockies policies related to courses can be found at <https://cotr.bc.ca/about-us/college-policies/> and include the following:

- Policy 2.1.4 Course Audit
 - Policy 2.4.1 Credential Framework
 - Policy 2.4.3 Students with Documented Disabilities
 - Policy 2.4.4 Student Rights, Responsibilities and Conduct
 - Policy 2.4.8 Academic Performance
 - Policy 2.4.9 Student Feedback and Concerns
 - Policy 2.4.11 Storage of Academic Works
 - Policy 2.5.3 Student Appeal
 - Policy 2.5.5 Prior Learning Assessment and Recognition (PLAR)
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Course Changes:

The College of the Rockies updates course outlines regularly to meet changing educational, employment and marketing needs. The instructor will notify students in writing of any updates to this outline during the semester. The instructor reserves the right to revise, add or delete material while meeting the learning outcomes of this course outline.