Bow Valley College

Course Outline

MATH1903

Introductory Calculus II
Fall 2024 - Current

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MATH1903 Introductory Calculus II

COURSE DESCRIPTION

A concluding treatment of single variable calculus and an introduction to calculus in several variables. Single variable calculus: techniques of integration, sequences, series, convergence tests, and Taylor series. Calculus of several variables: partial differentiation, multiple integration, parametric equations, and applications.

REQUISITES	Complete the following courses: • MATH1902 - Introductory Calculus (4)
EQUIVALENTS	None
CREDITS	4
HOURS	60
ELIGIBLE FOR PLAR	No
ZERO TEXTBOOK COST	No

COURSE LEARNING OUTCOMES

Bow Valley College is committed to ensuring our graduates can demonstrate their abilities in key areas that will make them effective citizens and encourage their development as lifelong learners. In addition to the discipline-specific skills that learners acquire in their programs, the College has identified ten learning outcomes.

College-Wide Outcomes:

1. Communication
2. Thinking Skills
3. Numeracy and Financial Literacy
4. Working with Others
5. Digital Literacy
6. Positive Attitudes and Behaviours
7. Continuous Learning
8. Health and Wellness Awareness
9. Citizenship and Intercultural Competence
10. Environmental Sustainability

#	COURSE LEARNING OUTCOME(S)	COLLEGE WIDE OUTCOMES SUPPORTED
1.	Apply techniques of integration to calculate integrals of functions of one or more variables, by hand and by using technology	2,3,5
2.	Apply concepts of integration to solve practical problems, typically related to areas and volumes	2,3
3.	Perform computations with sequences and series, such as convergent limits, sums, and radii of convergence	2,3
4.	Apply key concepts from sequences and series to Taylor polynomials and Taylor series computations	2,3
5.	Use technology to to visualize problems geometrically	2,3,5
6.	Demonstrate good reasoning and communication skills in mathematics, especially in writing mathematical arguments	1,2,3
7.	Explain both the importance and limitations of technology in context of doing mathematics	2,3,5
8.	Figure out new concepts individually or in collaboration with peers	1,4,5,6

COURSE MODULES AND SCHEDULE

**Course schedule subject to change, depending on delivery mode and term of study. For exact dates, please consult the Course Offering Information in Brightspace.*

WEEK/HOURS	MODULES
Week 1	Integration - Techniques (integration by parts, u-substitution)
Week 2	Integration - Advanced Techniques (trigonometric u-substitution)
Week 3	Integration - Advanced Techniques (partial fractions)
Week 4	Integration - Mixed Techniques review and online resources
Week 5	Sequences and Series - Introduction
Week 6 (placeholder for break)	Break
Week 7	Sequences and Series - Convergence Tests
Week 8	Sequences and Series - Convergence Tests, Power series
Week 9	Power Series and Taylor Series
Week 10	Partial derivatives and chain rule for functions of several variables
Week 11	Polar Coordinates and Double Integrals
Week 12	Cylindrical Coordinates and Triple Integrals
Week 13	Spherical Coordinates and Triple Integrals
Week 14	Review
Week 15	Final Exam Week

ASSESSMENT

COURSE LEARNING OUTCOME(S)	ASSESSMENT	WEIGHT
1-10	Assignments	30%
1-9	Quizzes	20%
1-9	Exams (minimum 2)	50%

Important: For details on each assignment and exam, please see the Course Offering Information.

PERFORMANCE STANDARDS

A minimum grade of D is required to pass this course. However, a program may require a higher grade in this course to progress in the program or to meet specific program completion requirements.

Please consult with the program area or contact the program chair for further details. A minimum Grade Point Average of 2.0 is required for graduation.

GRADING SCHEME

Grade	Percentage	Grade Point	Description
A+	95-100	4.0	Exceptional: superior knowledge of subject matter
A	90-94	4.0	Excellent: outstanding knowledge of subject matter
A-	85-89	3.67	
B+	80-84	3.33	
B	75-79	3.0	Very Good: knowledge of subject matter generally mastered
B-	70-74	2.67	
C+	67-69	2.33	
C	64-66	2.0	Satisfactory/Acceptable: knowledge of subject matter adequately mastered
C-	60-63	1.67	
D+	57-59	1.33	
D	50-56	1.0	Minimal Pass
F	Less than 50	0.0	Fail: an unsatisfactory performance

REQUIRED LEARNING RESOURCES

1.(a) Feldman, J., Rechnitzer, A., & Yeager E. *CLP-2: Integral Calculus*. University of British Columbia. https://personal.math.ubc.ca/~CLP/CLP2/

1.(b) Feldman, J., Rechnitzer, A., & Yeager E. *CLP-3: Multivariable Calculus*. University of British Columbia. https://personal.math.ubc.ca/~CLP/CLP3/

Additional learning resources may be found in the Course Offering Information or in Brightspace.

ADDITIONAL INFORMATION

Additional information may be found in the Course Offering Information or in Brightspace.

ACADEMIC ACCOMMODATIONS

Learners with a disability (learning, physical, and/or mental health) may qualify for academic and exam accommodations. For more information, or to apply for accommodations, learners should make an appointment with Accessibility Services in the Learner Success Services (LSS) Department. Accessibility Services can also assist learners who may be struggling with learning but do not have a formal diagnosis. To make an appointment visit LSS on the first floor of the south campus or call 403-410-1440. It is the learner's responsibility to contact Accessibility Services and request academic accommodations. For more information, please visit our website at http://www.bowvalleycollege.ca/accessibility.

INSTITUTIONAL POLICIES

Bow Valley College is committed to the highest standards of academic integrity and honesty. Learners are urged to become familiar with and uphold the following policies: Academic Integrity (500-1-7), Learner Code of Conduct, Procedures and Guidelines (500-1-1), Learner Appeals (500-1-12), Attendance (500-1-10), Grading (500-1-6), Academic Continuance and Graduation (500-1-5), and Electronic Communications (300-2-13). Audio or video recording of lectures, labs, seminars, or any other teaching and learning environment by learners is allowed only with consent of the instructor as part of an approved accommodation plan. Recorded material is to be used solely for personal study and is not being used or distributed without prior written consent from the instructor.

Turnitin:

Students may be required to submit their course work to Turnitin, a third-party service provider engaged by BVC. Turnitin identifies plagiarism by checking databases of electronic books and articles, archived webpages, and previously submitted student papers. Students acknowledge that any course work or essays submitted to Turnitin will be included as source documents in the Turnitin.com reference database, where it will be used solely to detect plagiarism. The terms that apply to a student's use of Turnitin are described on Turnitin.com.

Online Exam Proctoring:

Examinations for this course may require proctoring through an online proctoring service. Online proctoring enables online exam taking within a controlled and monitored environment, thereby enhancing academic integrity. Online proctoring may occur through a variety of methods, including but not limited to:

a. live online proctoring where a remote invigilator authenticates identity and observes completion of an exam using specialized software and recordings;
b. automated proctoring where the exam session is recorded and AI (artificial intelligence) analyzed;
c. browser lockdown that limits access to other applications, websites, copying, printing, screen capture and other functions; or
d. a combination of both live/automated proctoring and browser lockdown.

Course instructors will review recordings, analyses, and data obtained through online proctoring for academic integrity infractions. It is the student's responsibility to meet the technical, software, location, and identity verification requirements necessary to enable online proctoring.

Further details of these policies are available in the Academic Calendar and on the Bow Valley College website, bowvalleycollege.ca.

Learners are encouraged to keep a copy of this course outline for future reference.

Collection of Personal Information:

This course, including your image and voice, may be recorded and made available to you and other students taking the course section. By attending the class(es) online or in person, you consent to the collection of your personal information. If you do not wish to be recorded, please contact your instructor before starting the course/class to discuss alternative arrangements.

You may use the recordings only for educational purposes and you must not copy, share, or use the recordings for any other purpose without the instructor's express permission.

Your personal information is collected in accordance with section 33(c) of the Freedom of Information and Protection of Privacy Act (Alberta) to deliver academic programming, support learner flexibility, promote universal design for learning principles, and for purposes consistent with the course activities and outcomes. If you have any questions about the collection, disclosure, use, or protection of this information, please contact the College's Access and Privacy Officer at foip@bowvalleycollege.ca.