Bow Valley College

Course Outline

MATH1600

Introduction to Statistics I
Fall 2025 - Current

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MATH1600 Introduction to Statistics I

COURSE DESCRIPTION

Students learn the basic principles of statistics, acquire the skills to solve elementary statistical and probability problems, and gain hands-on experience with well-known statistical software and basic methods for collecting data. Students also learn the main tools of descriptive statistics to visualize collected data, analyze data distributions, and establish correlations and regressions between random variables. The course covers the main tools of inferential statistics for estimating mean values and proportions by confidence intervals, hypotheses testing, and one-way ANOVA. Applications are taken from a wide range of subject areas such as biology and environmental science, business and economics, health sciences, education, crime and law, politics, social studies, and sports and entertainment.

REQUISITES	None
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	Calculate probabilities of simple and compound events by using properties of random variables and their distributions, including measures of center and spread.	1, 2, 3, 4, 5, 6, 7
2	Analyze discrete and continuous random variables using technology to examine their distributions.	1, 2, 3, 4, 5, 6, 7
3	Differentiate among common probability distribution models—such as Binomial, Poisson, Uniform, Exponential, Hypergeometric, and Normal – based on their characteristics and appropriate use cases.	1, 2, 3, 4, 5, 6, 7, 9, 10
4	Apply the Central Limit Theorem to the study of the mean for samples from prescribed well-known distributions.	1, 2, 3, 4, 5, 6, 7
5	Construct confidence intervals to estimate a population mean or proportion.	1, 2, 3, 4, 5, 6, 7, 9, 10
6	Perform hypothesis tests for a population mean and proportion by calculating the appropriate test statistics and determining the p-value or rejection region.	1, 2, 3, 4, 5, 6, 7

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
1	Introduction to probability, set theory, and key terms
2	Basic probability
3	Conditional probability and counting
4	Counting
5	Introduction to random variables
6	Discrete random variables and their distributions
7	Continuous probability
8	Continuous random variables and their distributions
9	Exploratory data analysis
10	Sampling distributions
11	Confidence intervals
12	Hypothesis testing
13	Linear regression
14	Review and wrap up

ASSESSMENT

COURSE LEARNING OUTCOME(S)	ASSESSMENT	WEIGHT
1-6	Assignments	30%
1-6	Quizzes	10%
1-6	Lab activity	20%
1-6	Exams (minimum of 2)	40%

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

Illowsky, B., & Dean, S. (2023). *Introductory statistics* (2nd ed.). OpenStax. https://openstax.org/books/introductory-statistics-2e/pages/1-introduction

Chibry, N. (2015). *Introduction to Statistics I – STAT 213 (Ver2015RevB)* [Open educational resource]. Internet Archive. https://archive.org/details/cnx-org-col11874

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

ADDITIONAL INFORMATION

The following is an optional textbook resource:

McClave, J., & Sincich, T. (2017). *Statistics* (13th ed.). Pearson.

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.