COQUITLAM COLLEGE
Established 1982

COURSE OUTLINE

Effective: Fall 2025

COURSE INFORMATION

Course Title: Introduction to Probability and Statistics **Course Number:** STAT 270 **Credits:** 3

Total Weeks: 14 (Fall, Spring)
12 (Summer)

Total Hours: 39

Course Level: ☐ First Year ☒ Second Year
☐ New ☐ Revised Course
☐ Replacement Course

Department: Math/Statistics **Department Head:** G. Belchev **Former Course Code(s) and Number(s) (if applicable):** N/A

Pre-requisites (If there are no prerequisites, type NONE): MATH 102 or MATH 112 or equivalent (minimum grade of B-)

Co-requisite Statement (List if applicable or type NONE): NONE

Precluded Courses: N/A

COURSE DESCRIPTION

This course introduces students to probability theory and its applications to statistics, management science, reliability, quality control, insurance, computing science and other similar fields of endeavor.

LEARNING OUTCOMES

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

- Understand probability rules, conditional probability, and independence concept
- Apply the Bayes' theorem to solve management science and other engineering applications
- Name and describe various basic discrete probability distributions (Binomial, hypergeometric, and Poisson distributions) and their applications
- Name and describe various basic continuous probability distributions (uniform, exponential, gamma, and normal distributions) and their applications
- Understand and apply the central limit theorem
- Construct confidence intervals and interpret outcomes
- Perform hypothesis testing and interpret p-value
- Develop and healthy attitude about statistics and the confidence to explore the statistical ideas beyond this course

INSTRUCTION AND GRADING

Instructional (Contact) Hours:

Type	Duration
Lecture	39
Seminars/Tutorials	
Laboratory	
Field Experience	
Other (*specify):*	
Total	39

Grading System: Letter Grades ☒ Percentage ☐ Pass/Fail ☐ Satisfactory/Unsatisfactory ☐ Other ☐

Specify passing grade: 50%

Evaluation Activities and Weighting (total must equal 100%)

Assignments:	%	Lab Work:	%	Participation:	10%	Project:	%
Quizzes/Test:	20%	Midterm Exams:	30%	Final Exam:	40%	Other: *Specify:*	%

TEXT(S) AND RESOURCE MATERIALS

Provide a full reference for each text and/or resource material and include whether required/not required.

Probability and Statistics for Engineering and the Sciences, 9th ed., by Jay L. Devore (Author), Duxbury Publishers.

COURSE TOPICS

List topics and sequence covered.

Week	Topic
Week 1	Overview and descriptive statistics
Week 2	Probability: Elementary probability rules
Week 3	Probability: Conditional probability and interdependence Bayes' theorem
Week 4	Discrete random variables and probability distributions: Expectation, variance, and CDF
Week 5	Discrete random variables and probability distributions: Binomial, hyper-geometric, and Poisson distributions
Week 6	Continuous random variables and probability distributions: Expectation, variance, and CDF
Week 7	**MIDTERM EXAM**
Week 8	Continuous random variables and probability distributions: Continuous distributions, uniform, exponential, gamma, and normal distributions, normal approximation to the binomial distribution
Week 9	Joint probability distributions and random samples: Discrete, bivariate distributions, joint, marginal, and conditional distributions, covariance, and independence
Week 10	Joint probability distributions and random samples: Sums of random variables, law of large number, the central limit theorem
Week 11	Statistical intervals based on a single sample: Confidence interval problems for a proportion and a mean
Week 12	Hypothesis testing: Basic hypothesis testing and p-value
Week 14	**FINAL EXAM**

NOTES

1. Students are required to follow all College policies. Policies are available on the website at: Coquitlam College Policies
2. To find out how this course transfers, visit the BC Transfer Guide at: bctransferguide.ca

Last Reviewed: June 2025
Last Revised: June 2025