



EFFECTIVE: SEPTEMBER 2010 CURRICULUM GUIDELINES

A. Division: **Education** Effective Date: September 2010

B. Department: **Mathematics /Science and** Revision New Course
 Program Area: **Technology**

If Revision, Section(s)
 Revised:
 Date of Previous Revision:
 Date of Current Revision:

C: **Math 2260** D: **Probability and Statistics for Science & Engineering** E: **3**

Subject & Course No.	Descriptive Title	Semester Credits
F: Calendar Description: Introduction to descriptive statistics, laws of probability, distributions of continuous and discrete random variables, inferential statistics, correlation and linear regression. This course rigorously develops statistical theory and is intended for those students who will continue on in applied disciplines or wish to pursue more statistics courses.		
G: Allocation of Contact Hours to Type of Instruction / Learning Settings Primary Methods of Instructional Delivery and/or Learning Settings: Lecture and tutorial Number of Contact Hours: (per week / semester for each descriptor) Lecture: 4 hours/week Tutorial: 1 hour/week Number of Weeks per Semester: 15	H: Course Prerequisites: Math 1120	
	I: Course Corequisites: Math 1220	
	J: Course for which this Course is a Prerequisite: None	
	K: Maximum Class Size: 35	
L: PLEASE INDICATE: <input type="checkbox"/> Non-Credit <input type="checkbox"/> College Credit Non-Transfer <input checked="" type="checkbox"/> College Credit Transfer: SEE BC TRANSFER GUIDE FOR TRANSFER DETAILS (www.bctransferguide.ca)		

M: Course Objectives / Learning Outcomes: Students who complete the course successfully will be able to discuss and solve problems involving:

- different data types
- graphical representation of data
- numerical measures of a data set's central and dispersive characteristics
- a sample space and events
- basic probability rules
- independence
- conditional probability
- Bayes' theorem
- general properties of discrete and continuous random variables and their distributions
- expected value, mean and variance for a random variable with a given distribution
- binomial, hypergeometric and Poisson distributions
- normal, gamma and exponential distributions
- jointly distributed random variables
- covariance and correlation
- distributions for sample means and linear combinations of independent identically distributed random variables
- central limit theorem
- estimation of a population mean, difference of means, variance, proportion or a difference of proportions based on sample data
- qualification of a claim regarding a mean, difference of means, variance, proportion or a difference of proportions based on sample data
- scatter plot of bivariate data
- linear regression model for bivariate data
- correlation coefficient of bivariate data
- the use of a significant amount of, and sophisticated level of, technology

N: Course Content:

1. Descriptive statistics.
2. Laws of Probability.
3. Distributions of Continuous and Discrete Random Variables.
4. Sampling Distributions and the Central Limit Theorem.
5. Estimation and Hypothesis Testing.
6. Regression and Correlation.

O: Methods of Instruction:

Lectures, in-class assignments and tutorials.

P: Textbooks and Materials to be Purchased by Students:

Devore, Jay. **Probability and Statistics for Engineering and the Sciences**, (current edition), Duxbury.

Q: Means of Assessment:

Evaluation will be carried out in accordance with Douglas College policy. The instructor will present a written course outline with specific evaluation criteria at the beginning of the semester. Evaluation will be based on the following criteria:

Quizzes	0 – 20%
Assignments	0 – 20%
Attendance	0 – 5%
In-class Work	0 – 10%
Projects	0 – 20%
Tutorial	0 – 10%
Term Tests	20 – 75%
Final Exam	30 – 40%

R: Prior Learning Assessment and Recognition: specify whether course is open for PLAR

None

Course Designer(s): Dan Henschell

Education Council / Curriculum Committee Representative

Dean / Director: Thor Borgford

Registrar: