

EFFECTIVE: MAY 2006 CURRICULUM GUIDELINES

Α.	Division:	Instructional		Effective Date:			May 2006			
В.	Department / Program Area:	Mathematics Faculty of Science & Technology		Revision		X	New Course			
C:	Math 1160	D : In	ntroduction t	Re [.] Da Da	Revision, Section(s) vised: te of Previous Revision te of Current Revision: stics		G,H,M,N,O,P,Q June 2002 June 2005 E: 3			
	Subject & Course No. Descript		ive Tit	le	Sen	nester Credits				
F:	Calendar Descri	ption:								
	A pre-calculus introduction to descriptive statistics, measures of central tendency and variation, elementary probability, probability distributions, sampling, hypothesis testing, regression, correlation and chi-square testing.									
G:	Allocation of Contact Hours to Type of Instruction / Learning Settings Primary Methods of Instructional Delivery and/or Learning Settings: Lecture and tutorials Number of Contact Hours: (per week / semester for each descriptor) 4 hours lecture and 1 hour tutorial Number of Weeks per Semester:		H: I: K:	Course Prerequisites: Math 1105 or BC Principles of Math 11 (B or better) or BC Applications of Math 11 (A- or better) or BC Principles of Math 12 (C or better) or BC Applications of Math 12 (B or better) Course Corequisites: None Course for which this Course is a Prerequisite None Maximum Class Size: 35						
L:	PLEASE INDICATE: Non-Credit									
	College Credit Non-Transfer									
	SEE BC TRANSFER GUIDE FOR TRANSFER DETAILS (www.bctransferguide.ca)									

M: Course Objectives / Learning Outcomes

At the end of the course, the successful student should be able to:

- Define the terms "population" and "sample" as they apply to Statistics
- Define and differentiate between the nominal, ordinal, interval and ratio levels of measurement
- Explain the proper use of Statistics within real world application and provide examples of its abuse
- Have an understanding of experimental design and the use of random number tables and generators
- Create and interpret frequency tables, histograms, cumulative frequency tables, stem and leaf displays and scatter plots
- Calculate and interpret measures of central tendency and variation
- Calculate and interpret standard scores
- Understand the classical and relative frequency approaches to probability and employ counting techniques
- Know and apply the addition and multiplication rules for probability and the concept of conditional probability
- Be able to differentiate between discrete and continuous random variables
- Determine whether the conditions for a Binomial experiment apply and compute the Binomial probabilities
- Compute the mean, variance and standard deviation for the Binomial distribution
- Determine probabilities of standard and non-standard normal random variables
- Use the Normal distribution to approximate Binomial probabilities
- Understand and apply the Student t distribution
- Apply the Central Limit Theorem to estimate population parameters using large and small samples
- Apply the Central Limit Theorem to estimate the difference between population parameters
- Perform hypothesis tests on population parameters or the difference between population parameters using large and small samples
- Create confidence intervals for population parameters or their difference using large and small samples.
- Create Contingency Tables and perform goodness-of-fit testing in multinomial experiments using the Chi-square test. (optional)
- Understand and apply Chebychev's theorem (optional)
- Understand and apply the Poisson and other probability distributions (optional)

N: Course Content:

1. Introduction to Statistics

- The nature of data, uses and abuses of statistics, design of experiments statistics with calculator and computers.
- 2. Describing exploring and comparing data
 - Summarizing data with frequency tables, pictures of data, measures of central tendency, measures of variation, measures of position, exploratory data analysis.

3. Probability

• Definitions, addition rule, multiplication rule, probabilities through simulation, counting.

4. Probability Distributions

 Random variables, binomial experiments, mean, variance and standard deviation for the Binomial distribution.

5. Normal Probability Distributions

• The Standard Normal distribution, non-standard Normal distributions, the Central Limit Theorem, Normal approximation to the Binomial distribution.

6. Estimates and Sample Sizes

• Estimating a population mean using large and small samples, estimating a population proportion.

7. Hypothesis Testing

- Fundamentals of Hypothesis Testing, testing a claim about a mean using large and small samples, testing a claim about a proportion.
- Confidence intervals.

				about two means: independent and large samples, inferences about two					
	proportions	•		•					
	9. Correlation and Regression								
	 Correlation, regression varia 	ation							
0:	Methods of Instruction								
	Lectures, group work, assignments.								
P:	Textbooks and Materials to be Purchased by Students								
	Moore, <u>The Basic Practice of Statis</u> Calculator TI83+ or TI84 (optional)	tics, 2nd Edition,	Freeman, 2003	i					
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.								
	a. Weekly Quizzes	0 - 20%							
	b. Term Tests	20 - 70%							
	c. Tutorials	0 - 10%							
	d. Participation/Attendance	0 - 5 %							
	e. Assignments	0 - 10%							
	f. Final Exam	30 - 40%							
	Note: Students may be required to pass the final exam in order to be eligible to pass the course.								
R:	Prior Learning Assessment and Recognition: specify whether course is open for PLAR								
	None								
Cour	se Designer(s) Annie Marc		Education Co.	uncil / Curriculum Committee Representative	_				
Coul	ac Designer(s) Annie Ware	Įuisc	Laucation Cot	men / Currentum Commutee Representative					
Dear	/ Director Des Wilson		Registrar	Trish Angus	_				

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