

Last Revised: January 2021

**COURSE INFORMATION**

**Course Title:** Introduction to Statistics **Course Number:** STAT 101 **Credits:** 3

**Total Weeks:** 14 (Fall, Spring) **Total Hours:** 39  
12 (Summer)

**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):** NONE

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

**Precluded Courses:** N/A

**COURSE DESCRIPTION**

This is an introductory course in statistics which discusses procedures that are most commonly used in the summary of statistical surveys and the interpretation of experimental data.

**LEARNING OUTCOMES**

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

- Tell the difference between an experiment and an observational study.
- Describe the distribution with graphs (Histogram and Stemplot) and with numbers (mean, SD, and Quantiles).
- Understand how to use normal distributions to model real-life applications.
- Describe the relationship between 2 quantitative variables with graphs (scatter-plots and residual plots) and numbers (correlation, regression slope, intercept, and Root Mean Square Errors).
- Understand the basic probability models and how they are related to the statistical inferences.
- Understand the chance variability and its relationship to the sampling distribution.
- Understand Central limit theorem and the chance errors in sampling.
- Understand the interval estimation – Confidence Intervals.
- Understand the test on significance – Hypothesis Testing
- Understand Chi-square test if time permits.

**INSTRUCTION AND GRADING**

Instructional (Contact) Hours:

Type	Duration
Lecture	39
Seminars/Tutorials	
Laboratory	
Field Experience	
Other ( <i>specify</i> ):	
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: % <i>Specify number of, variety, and nature of assignments:</i>	Lab Work: %	Participation: 17.5% <i>Specify nature of participation:</i>	Project: % <i>Specify nature of project:</i>
Quizzes/Test: 17.5%	Midterm Exam: 30%	Final Exam: 35%	Other: % <i>Specify:</i>

**TEXT(S) AND RESOURCE MATERIALS**

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

David Freedman, Robert Pisani, Roger Purves. (W.W. Norton & Co.) (4th edition) Statistics.

**COURSE TOPICS**

List topics and sequence covered.

Week	Topic	Chapter
Week 1	Controlled Experiments	1
Week 2	Observational Studies	2
Week 3	Describe distribution with graphs (Histogram and Stemplot)	3
Week 4	Describe distribution with numbers (mean, SD, and Quantiles)	4
Week 5	Normal Distributions and Measurement Errors	5, 6
Week 6	Correlation	8, 9
Week 7	Regression	10,11

**MIDTERM EXAM**

Week 8	Probability	13, 14, 15
Week 9	The law of averages, EV, and SE	16, 17
Week 10	The Normal Approximation – Central Limit Theorem	18, 19
Week 11	The accuracy of percentages and averages (confidence intervals)	20, 21, 23
Week 12	Tests of Significance	26
Week 13	The Chi-Square Test	28
Week 14	<b>FINAL EXAM</b>	

**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](http://bctransferguide.ca)