



MASKWACIS CULTURAL COLLEGE
STAT 1500 - Introduction To Statistics
First Year
Fall 2017

Course dates:

Lecture/Lab Room No: 102

Lecture/Lab Time: Tuesdays, 5pm to 8pm (lecture), Lab : TBA

Instructor: Allan Hildebrandt (M.Sc. Applied Mathematics)

Contact: email hildebrandte0@macewan.ca

Academic Calendar description and credit hour breakdown:

University Transfer Course (MCC) 13-3-1.5

Required Text(s): Mann, P. S. (2012). *Introductory Statistics* (8 ed.). Wiley.

Additional Resources: Calculator, Formula sheet provided on test and exams.

Prerequisites and Co-requisite information: Math 30-1 or Math 30-2

Course Description: The course introduces students to the theory and application of statistics. Topics include: data description; probability theory; discrete and continuous random variables and their distributions; sampling distributions; elementary inference for population means and proportions; Goodness-of-Fit Test; Chi-Squared test for contingency tables.

Course Objectives: The course provides an introduction to elementary concepts and techniques from Statistics which have applications to Science, Engineering, Business, and Social Sciences. Students will become familiar with basic data analysis and learn how to draw inferences from sample data.

Learning outcomes: At the end of this course, the students will be able to

- a) summarize sample and population data using graphical and numerical techniques,
- b) solve elementary probability problems,
- c) perform calculations including mean and standard deviation given a discrete probability distribution,
- d) perform probability calculations with a normal distribution,
- e) calculate the sampling distribution of sample mean and sample proportion,
- f) find confidence intervals for the population mean based on given sample data,
- g) find confidence intervals for the population proportion based on the given sample data,

- h) find confidence intervals for the difference of two population means based on given sample data,
- i) find confidence intervals for the difference of two population proportions based on given sample data,
- k) perform hypothesis tests for the population mean based on given sample data,
- l) perform hypothesis tests for the population proportion based on given sample data,
- m) perform hypothesis tests for the difference of two population means based on given sample data,
- n) perform hypothesis tests for the difference of two population proportions based on given sample data,
- o) perform goodness-of-fit tests based on a given set of data,
- p) perform tests for independence or homogeneity based on a given set of data.

Grading system rating:

Letter Grade	Grade Point	Percentage	
A+	4.0	95-100	Excellent
A	3.7	90-94	
A-	3.3	85.89	(Honours)Advanced Diploma
B+	3.0	79-84	(Honours) Diploma
B	2.7	72-78	
B-	2.5	66-71	
C	2.0	62-65	
C-	1.7	59-61	
D	1.3	55-58	
F	0	< 54	

Grade Evaluation:

Midterm Test 1	25 %
Midterm Test 2	25 %
Final Exam	35 %
Homework Assignments	15 %
Total	100%

Each midterm test will be 80 minutes long and will be done at the beginning of the lecture.

Midterm test #1 will be on October 26, 2015 covering Chapters 1 to 5.

Midterm test #2 will be on November 16, 2015 covering Chapters 6 to 8 (possibly 9).

LECTURE TOPICS: Tentative Lecture Schedule for Stat 1500

Please refer to the appropriate sections in the text. The following parts of the text will be omitted: Sections 2.5, 3.3, 3.4.1, 5.5-5.8, 6.7, 9.2, 10.1, 11.5, all of chapters 12 and 13.

Week	Sections	Description
1. September 14	1.1-1.8 2.1-2.2	What is Statistics? Types of Statistics Population versus sample, basic terms, types of variables Graphical Methods for describing data (Bar Charts, Pie-Charts)
2. September 21	2.3-2.7 3.1-3.2	Histograms, Stem-and-leaf displays, Dotplots Numerical Methods for Describing data (Measures of Centre and Dispersion) <i>Homework assignment 1 due</i>
3. September 28	3.4-3.6 4.1-4.2	the Empirical Rule, measures of Position, Box-and-Whisker plots Probability (Sample Space, Calculating Probability) <i>Homework Assignment 2 due</i>
4. October 5	4.3-4.9 5.1-5.3	Probability Rules, Independence, Conditional Probabilities, Tree Diagrams, Random Variables, Discrete Probability Distributions <i>Homework Assignment 3 due</i>
5. October 19	6.1-6.6	Mean and Standard deviation of discrete variables, Continuous probability distribution, Normal distributions, The Standard Normal Distribution, Standardizing a Normal Distribution, Applications of the Normal Distributions, Backward Calculations <i>Homework Assignment 4 due</i>
6. October 26	7.1-7.5	Sampling Distributions, The Central Limit Theorem: Sampling Distribution of a Sample Mean, Monday October 26 Midterm 1 (Chapters 1-5)

Week	Sections	Description
7. November 2	7.6-7.8 8.1-8.3	Sampling Distribution of a Sample Proportion Estimation of the Mean and Proportion, Point <i>Homework Assignment 5 due</i>
8. November 9	8.4-8.5 9.1, 9.3	The t-distributions, Confidence Intervals for Means and Proportions, Choosing the Sample Size, Tests of Significance, Types of Error, Hypothesis Tests for a Population Mean (σ not known), <i>Homework Assignment 6 due</i>
9. November 16	9.4	Hypothesis Test for a Proportion <i>Monday Nov 16 Midterm 2 (Chapters 6-8)</i>
10. November 23	10.3, 10.4-10.5	Comparing Two Population Means (Two Independent Samples t Procedures (not pooled), Paired-t Procedure, Comparing Two Population Proportions (Large and Independent Samples) <i>Homework Assignment 7 due</i>
11. November 30	11.1-11.4	Tests of Independence or Homogeneity <i>Homework Assignment 8 due</i>
12. December 7	Final Exam	

The final exam is on Monday, December 7th from 9am to 12pm. The location will be the usual classroom.

STAT 1500 Assignment Schedule, Fall 2015

All problems referred to are from the textbook. The use of statistical software or a programmable calculator is **not** allowed for solving the homework assignments. Show your work. Your work should be neat and easy to read. Graders may deduct marks for work that is messy and difficult to follow. Attempt the problems as they are listed below. You must submit your assignment to the instructor by noon on the due date. Make sure to write your name and assignment number on the front page of your assignment.

Marked assignments will be returned in class.

Assignment Number	Problems	Due Date
1	1.5, 1.6, 1.8, 1.10, 1.12, 1.14, 1.16 1.26, 2.4, 2.10	September 21
2	2.14, 2.16, 2.20, 2.23, 2.28, 2.46, 2.48, 2.55, 2.62, 3.18, 3.29, 3.50	September 28
3	3.80, 3.84, 3.90, 3.92, 3.96, 3.101, 3.108, 4.1, 4.2, 4.4, 4.10, 4.28, 4.34, 4.38	October 5
4	4.48, 4.50, 4.54, 4.60, 4.62, 4.84, 4.90, 4.94, 4.112, 4.116, 4.126, 5.2, 5.12, 5.14, 5.18, 5.26, 5.28	October 19
5	6.16, 6.38, 6.48, 6.62, 6.80, 6.84, 7.8, 7.12, 7.20, 7.48, 7.54	November 2
6	7.78, 7.82, 7.90, 7.92, 8.2, 8.4, 8.24, 8.30,	November 9
7	8.40, 8.56, 8.62, 8.68, 8.86, 8.90, 8.108, 8.112, 8, 9.6, 9.10, 9.50, 9.58, 9.70, 9.90, 9.92	November 23
8	10.40, 10.46, 10.52, 10.56, 10.72, 10.74, 10.98, If Time Permits: 11.2, 11.6, 11.14, 11.22, 11.30, 11.32, 11.36	November 30

Additional Information: There is a one-hour lab immediately following each lecture. This lab time will be used for additional examples and opportunity to do homework questions with the instructor available for assistance. There are no specific lab assignments or quizzes.

Students may use a nonprogrammable, nongraphing calculator for assignments, midterm tests and final exam. A formula sheet is provided for tests and final exam. Otherwise, no other aids (notes, textbook) are permitted during tests and exams.

Student conduct: All students are expected to attend lectures and labs.

Plagiarism: is a serious Academic offence. The consequence of such an offence is termination from the program.

Missed Assignments and projects: Assignments must be handed in on the due date – some consideration will be given to extenuating circumstances, but generally late assignments

will be returned to the student ungraded and the grade for such an assignment will be zero. Any assignments that are not handed in will receive a grade of zero.

There is no provision for doing additional work for grades at the end of or after the course is completed.

Academic approval by

A handwritten signature in black ink, appearing to read "CLouis", is written over a horizontal line.

President: Dr. Claudine Louis

Cultural content approved by

A handwritten signature in blue ink, appearing to read "Jerry Saddleback", is written over a horizontal line.

Elder Jerry Saddleback