



COURSE OUTLINE

MATH 105

INTRODUCTORY STATISTICS

60 HOURS
3 CREDITS

PREPARED BY: _____
Mark Shumelda, Instructor

DATE: _____

APPROVED BY: ALR
Dr. Andrew Richardson, Dean

DATE: _____

YUKON COLLEGE

Copyright November, 2014

All right reserved. No part of this material covered by this copyright may be reproduced or utilized in any form or by any means, electronic or mechanical, traded, or rented or resold, without written permission from Yukon College.

Course Outline prepared by Mark Shumelda, November 21, 2014.

Yukon College
P.O. Box 2799
Whitehorse, YT
Y1A 5K



APPLIED ARTS DIVISION
Introductory Statistics
Credit Course
Winter, 2015

INTRODUCTORY STATISTICS

INSTRUCTOR: Mark Shumelda **OFFICE HOURS:** TBA
OFFICE LOCATION: A2303 **CLASSROOM:** A2601
E-MAIL: mshumelda@yukoncollege.yk.ca **TELEPHONE:** (867) 456-8578
LECTURE: Mon/Wed 10:30am-12:00pm **TUTORIAL:** Friday 1:00pm-2:00pm

COURSE CALENDAR DESCRIPTION

This is a first course in Statistics. The objective of the course is for students to gain a good intuitive understanding of statistical principles and methods. At the end of the course, students should be able to use elementary statistical techniques, and to critically assess statistical work done by others. Topics include descriptive statistics (histograms, mean, median, mode, standard deviation, normal approximations and measurement errors) correlation and regression probability chance variability sampling and hypothesis testing (including one-sample, two-sample, ANOVA, and chi-squared). The course is not intended to be a mathematical treatment of statistics, but a good knowledge of high school algebra is critical.

PREREQUISITES

MATH 11. MATH 12 or MATH 130 strongly recommended.

EQUIVALENCY OR TRANSFERABILITY

CAMO MATH 116 (4) KWAN MATH 1115 (3)
SFU STAT 101 (3) – Q TRU STAT 1200 (3)
TRU-OL STAT 1201 (3) TWU MATH 102 (3)
UBC STAT 203 (3). Not for credit in the faculty of Science.

UBCO STAT 121 (3) UFV MATH 1XX (3) UNBC STAT 240 (3)
VIU MATH 161 (3)

LEARNING OUTCOMES

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

- Apply the techniques of descriptive statistics in order to organize and analyse data (using histogram, mean, median mode, standard deviation).
- Demonstrate an understanding of probability (simple/addition/multiplication/conditional) and counting rules (combinations and permutations)
- Apply hypothesis tests to means, proportions and variances.
- Demonstrate an understanding of ANOVA and nonparametric statistics.
- Apply the techniques of inferential statistics (correlation and regression).
- Present the findings of a research project that employs the statistical techniques learned throughout the course to a real-world, local dataset.

COURSE FORMAT

The course consists of 3 hours of lecture and 1 hour of tutorial per week. The Friday tutorial sessions will give students the chance to work in small groups on practice problems and the class research project. Active participation in the tutorial sessions is important for success in the course. Some tutorial sessions will involve practice using Microsoft Excel for the assignments and research project.

ASSESSMENTS

Assignments

There are ten assignments in the course. They are due approximately one per week and are worth a combined total of 30% of the final course grade. An assignment handout listing all of the assigned questions and the due dates will be distributed on the first day of class.

Projects

Students will undertake a research project where they will apply the statistical techniques learned in the course to a real-life situation involving data analysis. The project will involve both an oral and written component (i.e. Excel, Powerpoint and poster presentation). The final product will be due during the last week of class, and smaller components of the project will be due at various points throughout the term. This research project will be undertaken as a collaboration with the Yukon Research

Centre. More information on the project will be presented during the first week of class. The research project is worth 20% of the final course grade.

Tests

There will be one mid-term test given during class, on Wednesday February 18. If your final exam mark exceeds your midterm exam mark, then only the final exam mark will be counted.

A comprehensive final examination will be held at the end of the term, within the period of April 13 - 24, 2015. The examination date will be announced as soon as it is confirmed by the School of Liberal Arts.

EVALUATION

Assignments	30%
Mid-term test	20%
Research Project	20%
Final examination	30%

REQUIRED TEXTBOOKS AND MATERIALS

Bluman, Allan G. and John G. Mayer (2011). *Elementary Statistics: A step-by-step approach* (2nd Canadian Edition). Toronto: McGraw-Hill Ryerson. ISBN: 978-0-07-000550-1

PLAGIARISM

Plagiarism is a serious academic offence. Plagiarism occurs when students present the words of someone else as their own. Plagiarism can be the deliberate use of a whole piece of another person's writing, but more frequently it occurs when students fail to acknowledge and document sources from which they have taken material. Whenever the words, research or ideas of others are directly quoted or paraphrased, they must be documented according to an accepted manuscript style (e.g., APA, CSE, MLA, etc.). Resubmitting a paper which has previously received credit is also considered plagiarism. Students who plagiarize material for assignments will receive a mark of zero (F) on the assignment and may fail the course. Plagiarism may also result in dismissal from a program of study or the College.

ACADEMIC ACCOMMODATION

Reasonable accommodations are available for students requiring an academic accommodation to fully participate in this class. These accommodations are available for students with a documented disability, chronic condition or any other grounds specified in section 8.0 of the Yukon College Academic Regulations (available on the Yukon College website). It is the student's responsibility to seek these accommodations. If a student requires an academic accommodation, he/she should contact the Learning Assistance Centre (LAC) at (867) 668-8785 or lassist@yukoncollege.yk.ca.

WRITING CENTRE

All students are encouraged to make the Writing Centre a regular part of the writing process for coursework. Located in C2231 (adjacent the College Library), the Writing Centre offers half-hour writing coaching sessions to students of all writing abilities. Coaching sessions are available in person and through distance technologies (e.g., email plus Skype or phone). For further information or to book an appointment, visit the Centre's website: www.yukoncollege.yk.ca/student_info/pages/writing_centre.

TOPIC OUTLINE

Week	Chapter: Topic	Assignments
1 Jan 5-9	1: <i>Introduction to Statistics</i> 2: <i>Frequency Distributions and Graphs</i>	No assignment due ☺
2 Jan 12-16	3: <i>Data Description</i>	Assignment 1 due Mon Jan 12
3 Jan 19-23	4: <i>Probability and Counting Rules</i>	Assignment 2 due Mon Jan 19
4 Jan 26-30	5: <i>Discrete Probability Distributions</i>	Assignment 3 due Mon Jan 26
5 Feb 2-6	6: <i>The Normal Distribution</i>	Assignment 4 due Mon Feb 2
6 Feb 9-13	7: <i>Confidence Intervals and Sample Size</i>	Assignment 5 due Mon Feb 9
7 Feb 16-20	Midterm Review Midterm exam February 18, 2014	Assignment 6 due Mon Feb 16 <i>No class Feb. 20 (Heritage Day)</i>
8 Feb 23-27	8: <i>Hypothesis Testing</i> 9: <i>Testing Differences</i>	No assignment due ☺
9 Mar 2-6	10: <i>Correlation and Regression</i>	Assignment 7 due Mon Mar 2
10 Mar 9-13	11: <i>Other Chi-Square tests</i>	Assignment 8 due Mon Mar 9
Mar 16-20	<i>Reading Week: No Classes</i> LAST DAY TO WITHDRAW Mar 20	No assignment due ☺
11 Mar 23-27	12: <i>Analysis of Variance</i>	Assignment 9 due Mon Mar 23
12 Mar 30- Apr 3	13: <i>Nonparametric Statistics</i> 14: <i>Sampling and Simulation</i>	Assignment 10 due Mon Mar 30 <i>No class Apr. 3 (Good Friday)</i>
13 Apr 6-10	<i>Exam Preparation and Class Presentations</i>	No assignment due ☺ <i>No class Apr. 6 (Easter Monday)</i>