APPLIED ARTS DIVISION
School of Liberal Arts
Winter Semester, 2016

COURSE OUTLINE

MATH 105

INTRODUCTORY STATISTICS

60 HOURS
3 CREDITS

PREPARED BY:	Ksenia Gasper	DATE:	December 30, 2015
APPROVED BY:	Victoria Castillo, Chair, School of Liberal Arts	DATE:	
APPROVED BY ACADEMIC COUNCIL		DATE:	
RENEWED BY ACADEMIC COUNCIL		DATE:	

APPLIED ARTS DIVISION
Introductory Statistics
Credit Course
Winter Semester, 2016

INTRODUCTORY STATISTICS

INSTRUCTOR: Ksenia Gasper	**OFFICE HOURS:** TBA
OFFICE LOCATION: TBA	**CLASSROOM:** A2206
E-MAIL: kgasper@yukoncollege.yk.ca	**TIME:** Lecture : Tues/Thurs 5:30 - 7 pm Tutorial : Tues 7 – 8 pm
TELEPHONE: (867) 456-8989	**DATES:** January 7, 2016 - April 27, 2016

COURSE 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, 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

AU MATH 215 (3)	CAMO STAT 116 (4)	KPU MATH 1115(3)
OC STAT 121 (3)	SFU STAT 101 (3) – Q	TRU STAT 1200 (3)
TRU-OLSTAT1201 (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) Refer to transfer notes UVIC STAT 100 lev (1.5)
VIU MATH 161 (3)

LEARNING OUTCOMES

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

- Apply the techniques of descriptive statistics (histogram, mean, median, mode, standard deviation) in order to organize and analyze data;
- 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); and
- Present the findings of a research project that employs the statistical techniques learned throughout the course to real-world datasets.

COURSE FORMAT

The course consists of three (3) hours of lecture and one (1) hour of tutorial per week. The Tuesday 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 access to online resources and/or 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.

Research Project

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 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. 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 a Mid-term Test given during class on Thursday 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 – 27, 2016. The examination date will be announced as soon as it is confirmed by the School of Liberal Arts.

EVALUATION

Assignments	30 %
Research Project	20 %
Mid-Term test	20 %
Final Exam	30 %
Total	100 %

REQUIRED TEXTBOOK 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

In addition to the textbook, some students may find it helpful to supplement their reading with free online resources. Excellent online resources include:

Khan Academy: Probability and Statistics
https://www.khanacademy.org/math/probability
Use it for: Short Youtube videos explaining each concept

Math is Fun: Probability and Statistics
http://www.mathsisfun.com/data/#stats
Use it for: Clear step-by-step explanations of each concept

ACADEMIC AND STUDENT CONDUCT

Information on academic standing and student rights and responsibilities can be found in the Academic Regulations:
http://www.yukoncollege.yk.ca//downloads/Yukon_College_Academic_Regulations_a

nd_Procedures_-_August_2013_final_v1.pdf

Attendance is integral to student success. Discussion and participation are particularly important in this class, and students are expected to attend regularly and punctually. If you miss a class, it is your responsibility to find out what you missed and to complete any work assigned.

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.

YUKON FIRST NATIONS CORE COMPETENCY

Yukon College recognizes that a greater understanding and awareness of Yukon First Nations history, culture and journey towards self-determination will help to build positive relationships among all Yukon citizens. As a result, to graduate from ANY Yukon College program, you will be required to achieve core competency in knowledge of Yukon First Nations. For details, please see http://www.yukoncollege.yk.ca/yfnccr.

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.

TOPIC OUTLINE

Please note that we will attempt to follow this outline as closely as possible, but may deviate from the schedule where it is necessary to give more time to a particular concept.

Week	Topic	Assignment
1: Jan 7	1. Introduction to Statistics	None due
2:Jan 12/14	2. Frequency Distributions / Graphs 3. Data Description	Assign. 1 due Jan 19
3:Jan 19/21	4. Probability and Counting Rules	Assign. 2 due Jan 26
4: Jan 26/28	5. Discrete Probability Distributions	Assign. 3 due Feb 2
5: Feb 2/4	6. Normal Distribution	Assign. 4 due Feb 9
6: Feb 9/11	7. Confidence Intervals and Sample Size	Assign. 5 due Feb 16
7: Feb 16/18	Mid-term review / MID-TERM	Assign. 6 due Feb 23
8: Feb 23/25	Reading Week (no classes)	None due
9: Mar 1/3	8. Hypothesis Testing 9. Testing Differences	None due
10: Mar 8/10	10. Correlation and Regression	Assign. 7 due Mar 15
11: Mar 15/17	11. Other Chi-Square tests	Assign. 8 due Mar 22
12: Mar 22/24	12. Analysis of Variance	Assign. 9 due Mar 29
13: Mar 29/31	13. Nonparametric Statistics 14. Sampling and Simulation	Assign. 10 due Apr 5
14: Apr 5/7	Class presentations	RESEARCH PROJECT DUE
15: Apr 12	Exam prep	None due

Other readings and materials may be assigned or advised. A detailed syllabus is provided in class and is found on the course site.