Course Outline

University Studies

Fall, 2017

STAT 151A – Introduction to applied statistics
3 credits, 3 hours lecture, 2 hours lab

An introduction to descriptive statistics (including histograms, stem-and-leaf plots, and box plots), elementary probability, the binomial distribution, the normal distribution, sampling distributions and the central limit theory. An introduction to inferential statistics including estimation of population parameters and confidence intervals for means, hypothesis testing including both one and two sample tests, paired comparisons, one-way analysis of variance, chi-square test, correlation and linear regression analysis.

Prerequisites and/or co-requisites
Math 30-1 or Math 30-2

Instructor

Dimitre Dimitrov
S 209E
780-791-8957
dimitre.dimitrov@keyano.ca

Office Hours

Tuesday	1:00pm – 3:50pm
Thursday	3:00pm – 3:50 pm
Friday	11:00am – 11:50am

Hours of Instruction

Lecture		
Monday	1:30pm – 2:50pm	Room CC228
Thursday	1:30pm – 2:50pm	Room CC228
Lab Y		
Friday	9:00am – 10:50am	Room S107

Required Resources

Gould, R., Ryan, C., Stallard, J., and Boue, M. (2017). Introductory Statistics: Exploring the world through data, Canadian Edition. Pearson. Canada. ISBN 978-0-321-82365-6

Course Outcomes

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

- apply descriptive and inferential statistics.
- competently use statistical computer software.

Evaluation

Item	Percent	Due Date
Lab assignments	10%	See Lab Assignments below
Homework Assignments	10%	Weekly, 11:59pm on Sundays
Midterm exams (1 and 2)	30% total	Monday, October 9 (15%) Monday, November 20 (15%)
Final lab examination	10%	Friday, December 1
Final course examination	40%	Week of December 11 to 15
Total	*100%*	

A grade of C- is required for progression or transfer.

Lab Assignments

In the real world, most statistical analyses are conducted using computer software. In this course we will be using one of the industry standards for analyzing statistics: IBM SPSS (Statistical Package for the Social Sciences). Five labs are designed to introduce students to the main features of data organization and analyses (both descriptive and inferential). The labs serve to demonstrate how data analyses covered in the course can be conducted with the statistical software. Labs run on two-week cycles. In the first week of the lab cycle, students are introduced to the relevant analyses. The second week of the cycle provides students with the opportunity to complete the lab with the instructor available to answer questions. All labs are due at the end of the second lab period for that lab.

Lab	Topic	Lab Dates
1	Displaying and Describing Distributions	Sept. 15, 22.
2	Linear Regression and Correlation	Sept. 29, Oct. 6
3	Inferences for one-sample problems	Oct. 13, 20
4	Inferences for two-sample problems	Oct. 27, Nov. 3
5	One-way Analysis of Variance	Nov. 17, 24
	Lab Exam	**Dec. 1**

Homework Assignments

There will be homework assignments for each chapter of the course text we cover. These assignments will be completed online through MyStatLab. Students receive access codes to this application with the purchase of the course text. If you decide to purchase a course text from a source other than the Keyano College bookstore, ensure that you get an access code for MyStatLab.

Term Exams

The two term exams provide students with a variety of statistical problems related to the material covered in lectures. Marks will be based on accurate statistical analyses and on the interpretation of the results of the statistical analyses. Students need to bring a calculator, pencils, and an eraser.

Lab Exam

In the second last week of the course (**December 1**) students will write a lab exam in their lab periods. The lab exam will be of similar format to the lab assignments, whereby students will be provided with a data set and a series of questions to answer. Statistical analyses will be conducted using SPSS and the lab exam (written in Microsoft Word) will be submitted by the end of the lab period. Students need to be able to apply all data management and statistical analyses they learned during the lab section of the course.

Final Exam

The final exam will be given in the examination week (**December 11 through 15**). The final exam will be of similar format to the term exams and consist of a series of statistical problems to be solved. Marks will be based on accurate statistical analyses and on the interpretation of the results of the statistical analyses. The final exam is covers material from the entire semester. Students need to bring a calculator, pencils, and an eraser.

Grading System

Descriptor	Alpha Grade	4.0 Scale	Percent	Rubric for Letter Grades
Excellent	A+	4.0	> 92.9	Work shows in-depth and critical analysis, well developed ideas, creativity, excellent writing, clarity and proper format.
	A	4.0	85 – 92.9	
	A-	3.7	80 – 84.9	
Good	B+	3.3	77 – 79.9	Work is generally of high quality, well developed, well written, has clarity, and uses proper format.
	B	3.0	74 – 76.9	
	B-	2.7	70 – 73.9	
Satisfactory **Progression**	C+	2.3	67 – 69.9	Work has some developed ideas but needs more attention to clarity, style and formatting.
	C	2.0	64 – 66.9	
	C-	1.7	60 – 63.9	
Poor **Minimum Pass**	D+	1.3	55 – 59.9	Work is completed in a general way with minimal support, or is poorly written or did not use proper format.
	D	1.0	50 – 54.9	
Failure	F	0.0	< 50	Responses fail to demonstrate appropriate understanding or are fundamentally incomplete.

Schedule of Topics

Topic	Reading	Dates
Introduction to data	Chapter 1	Sept. 7
Picturing Variation with Graphs	Chapter 2	Sept. 11, 14
Numerical Summaries of Centre and Variation	Chapter 3	Sept. 18, 21
Regression Analysis: Exploring Associations between Variables	Chapter 4	Sept. 25, 28
Modelling Variation with Probability	Chapter 5	Oct. 2, 5
Term Exam 1: Chapters 1, 2, 3, 4, 5		**Oct. 9**
Modeling Random Events: The Normal and Binomial Models	Chapter 6	Oct. 12, 16
Survey Sampling and Inference	Chapter 7	Oct. 19, 23
Hypothesis Testing for Population Proportions	Chapter 8	Oct. 26, 30
Inferring Population Means	Chapter 9	Nov. 2. 6
Associations between Categorical Variables	Chapter 10	Nov. 13, 16
Term Exam 2: Chapters 6, 7, 8, 9, 10		**Nov. 20**
Multiple Comparisons and Analysis of Variance	Chapter 11	Nov. 30, Dec. 4
Review		Dec. 7

Please Note:
Date and time allotted to each topic is subject to change.

Performance Requirements

Student Responsibilities

It is your responsibility as a student to contact the Office of the Registrar to complete the forms for Withdrawal or Change of Registration, and any other forms. Please refer to the list of important dates as noted in the Academic Schedule in the Keyano College credit calendar.

More specific details are found in the Student Rights and Student Code of Conduct section of the Keyano College credit calendar. It is the responsibility of each student to be aware of the guidelines outlined in the Student Rights and Student Code of Conduct Policies.

Student Attendance

Class attendance is useful for two reasons. First, class attendance maximizes a students' learning experience. Second, attending class is a good way to keep informed of matters relating the administration of the course (e.g., the timing of assignments and exams). Ultimately, you are responsible for your own learning and performance in this course.

It is the responsibility of each student to be prepared for all. Students who miss classes are responsible for the material covered in those classes and for ensuring that they are prepared for the next class, including the completion of any assignments and / or notes that may be due.

Academic Misconduct

Students are considered to be responsible adults and should adhere to principles of intellectual integrity. Intellectual dishonesty may take many forms, such as:

- Plagiarism or the submission of another person's work as one's own
- The use of unauthorized aids in assignments or examinations (cheating)
- Collusion or the unauthorized collaboration with others in preparing work
- The deliberate misrepresentation of qualifications
- The willful distortion of results or data
- Substitution in an examination by another person
- Handing in the same unchanged work as submitted for another assignment
- Breach of confidentiality.

The consequences for academic misconduct range from a verbal reprimand to expulsion from the College. More specific descriptions and details are found in the Student Rights and Student Code of Conduct section of the Keyano College credit calendar. It is the responsibility of each student to be aware of the guidelines outlined in the Student Rights and Student Code of Conduct Policies.

In order to ensure your understanding of the concept of plagiarism, you must successfully complete the online tutorial found on ilearn.keyano.ca. Then print the certificate, sign it, and show it to each of your instructors. Your course work will not be graded until you show this signed certificate.

Specialized Supports

Counselling and Accessibility Services

Counselling Services provides a wide range of specialized counselling services to prospective and registered students, including personal, career and academic counselling.

SKILL Centre

The SKILL Centre is a learning space in the Clearwater Campus at Keyano College where students can gather to share ideas, collaborate on projects and get new perspectives on learning from our tutorial staff.

The SKILL Centre, through a variety of delivery methods, provides assistance in skill development to Keyano students. Assistance is provided by instructors, staff and student tutors. Individuals wishing to improve their mathematics, writing, grammar, study, or other skills, can take advantage of this unique service.

Authorization

This course outline has been reviewed and approved by the Program Chair.

Dimitre Dimitrov, Instructor

Louis Dingley, Chair Date Authorized

Vincella Thompson, Dean Date Authorized

Signed copies to be delivered to:
Instructor
Registrar's Office