

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

Instructors*Lecture*

Michael A. Smith, PhD

S213B

780-791-8964

michael.smith@keyano.ca

Lab

R. Changirwa

S211B

780-791-4940

Robert.Changirwa@keyan.ca

Office Hours*Lecture*

Mon. 11:00 – 12:00; 1:00 – 2:00

Wed. 1:00 – 3:00

Thurs. 11:00 – 12:00

Lab

Mon. 1:00 – 1:50

Wed. 1:00 – 2:50

Thurs. 11:00 – 12:50

Hours of Instruction*Lecture*

Mon. 02:30 – 03:20; S205

Thu. 10:00 – 11:50; S205

Lab

Tues. 9:00 – 10:50; CC267

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

Laboratory	20%
Homework Assignments	10%
Term Test 1	15%
Term Test 2	15%
Final course examination	40%
<i>Total</i>	<i>100%</i>

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

Laboratory

The laboratory portion of the course consists of interactive labs and a final exam during the lab period.

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 Tests

The two term tests 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. Students need to bring a calculator, pencils, and an eraser.

Final Exam

The final exam will be of similar format to the term tests 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 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	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	D+	1.3	55 – 59.9	
Minimum Pass	D	1.0	50 – 54.9	

				Work is completed in a general way with minimal support, or is poorly written or did not use proper format.
Failure	F	0.0	< 50	Responses fail to demonstrate appropriate understanding or are fundamentally incomplete.

Proposed Schedule of Topics

Topic	Reading
Introduction to data & Visualizing Data	Chapters 1,2
Numerical Summaries of Centre and Variation	Chapter 3
Regression Analysis: Exploring Relationships between Variables	Chapter 4
Modelling Variation with Probability	Chapter 5
Modeling Random Events: The Normal and Binomial Models	Chapter 6
Survey Sampling and Inference	Chapter 9
Inferring Population Means	Chapter 7
Hypothesis Testing for Population Proportions	Chapter 8
Relationships between Categorical Variables	Chapter 10
Comparing Several means: One-Way Analysis of Variance	Chapter 11
Design of Experiments and Sampling	Chapter 12

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 to 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 classes. 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

The Student Academic Support Services (SASS) department: Accessibility Services, Skill Centre and Wellness Services, work together to support student success at Keyano College.

Accessibility Services (CC167) supports student success through group and individualized instruction of learning, study and test taking strategies, and adaptive technologies. Students with documented disabilities, or who suspect a disability, can meet with the Learning Strategists to discuss accommodation of the learning barriers that they may be experiencing. Students who have accessed accommodations in the past are encouraged to visit our office at their earliest opportunity to discuss the availability of accommodations in their current courses. Individual appointments can be made by calling 780-791-8934

Skill Centre (CC119) provides a learning space where students can gather to share ideas, collaborate on projects and get new perspectives on learning from our tutorial staff. Students visiting the centre have access to one-to-one or group tutoring, facilitated study groups, and assistance in academic writing. The Skill Centre's Peer Tutor program provides paid employment opportunities for students who have demonstrated academic success and want to share what they have learned. Tutoring is available free to any students registered at Keyano College on a drop in basis, from 9:00 am to 5:00 pm Monday through Friday. Additional evening hours are subject to tutor availability and are posted in the Skill Centre.

Wellness Services (CC260) offers a caring, inclusive, and respectful environment where students can access free group and individual support to meet academic and life challenges. Mental Health Coordinators offer a safe and confidential environment to seek help with personal concerns. The Mindfulness Room in CC260 is available as a quiet space for students to relax during regular office hours. Wellness Service welcomes students to participate in any of the group sessions offered throughout the academic year addressing such topics as Mindfulness and Text Anxiety. Individual appointments can be made by calling 780-791-8934.

Please watch your Keyano email for workshop announcements from our Student Academic Support Services team.