

BUS 111 A, Statistics I

3 Credits, 3 hours Lecture, 2 hours Lab

Students are introduced to basic statistical concepts and procedures used to solve business problems. Topics include: data graphics and charts; measures of central tendency and dispersion; elementary probability; probability and sampling distributions; interval estimation; hypothesis testing about the mean and proportion, ANOVA, chi-square test, inference for correlation and linear regression. Students will also develop competence in the use of data analysis software.

Prerequisites: BUS 110 Business Mathematics

Instructor

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Office Hours

TUE 11:00 - 11:50
WED/THU 12:00 - 13:50

Hours of Instruction

Lectures: MON/WED/THU	11:00 -11:50 (S212)	Labs: TUE: FRI:	14:30 – 16:20 (Lab Y - CC282) 10:00 – 11:50 (Lab X - S105)
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Required Resources

Sharpe, N. D., Richard, D., De Veaux, R., and Velleman, P. (2020). Business Statistics, Fourth Canadian edition. Pearson. Canada. ISBN-13: 9780136726548.

Please register for MyLab Statistics in order to access quiz, assignments, and exams related to the course. Instructions are provided on MOODLE under course orientation.

Textbook with access code for MyLab Statistics is available at the Keyano bookstore.

Course Outcomes

Upon successful completion of the course, the student shall be able to:

- Arrange data sets and represent them using a number of organizational methods.
- Determine descriptive statistics of data including the mean, mode, median, variance and standard deviation.
- Calculate the probability that any given event may occur.
- Determine and apply the discrete and continuous probability distributions including the binomial distribution, the normal distribution, sampling distributions and the central limit theory.
- Utilize inferential statistics including hypothesis testing about the mean and proportion, ANOVA, chi-square test, inference for correlation and linear regression.

- Perform statistical analysis of data with Microsoft EXCEL.

Evaluation

Assessment	Percentage
Assignments (Pearson)	10%
Labs and Tutorials (MOODLE)	20%
Class Participation	5%
Quizzes (MOODLE)	15%
Midterm Examination	20%
Final Examination	30%
Total	100%

Assignments

Assignments are conducted online and as such access to MyLab Statistics is mandatory. Students receive access codes to this application with the purchase of the course textbook from Keyano College bookstore. If you decide to purchase a course textbook from elsewhere, then ensure that you get an access code for MyLab Statistics from Keyano College bookstore. Your instructor will go over the instructions during the first lecture. Assignments must be completed via the MyLab Statistics web site before the posted due dates. As well this access is required for other tests. The assignments cover chapters learned in class.

Quizzes

Quizzes will be via MOODLE during lab sessions. They will be open-book brief tests covering chapters completed prior to the week of the quiz. The structure of the 30-minute Quiz will be a hybrid of multiple choice and direct answer questions. The Quizzes provide students with a variety of statistical problems related to the material covered in the 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 simple scientific calculator, pencils, and an eraser.

Labs and Tutorials

In the real business world, most statistical analyses are conducted using computer software. This is one of the industry standards for analyzing statistics and as such we will be employing EXCEL in this course. Please download and install Microsoft EXCEL prior to the start of the course on your personal computer if possible (see MOODLE). There are five labs that 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 are conducted in class and are due at the end of the class. The first session of the lab will be a technology workshop in which the students are introduced to the technology required to complete labs and relevant analyses and given the opportunity to ask the instructor questions. As well tutorials will be done during lab sessions. Tutorials will provide practice into technology and course material covered. Unlike labs, tutorials are instructor-assisted. All labs and tutorials are due at the end of the class.

Midterm Exam

There will be one midterm exam. It will be closed book, paper-based, hand-written and will cover chapters 2-8. The structure of the midterm will be two Sections A and B. Section A will be hybrid of multiple choice, Fill-in-the-Blanks and direct answer questions while Section B will have a series of long questions. This exam will provide students with a variety of statistical problems related to the material covered in the 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 simple scientific calculator, pencils, and an eraser.

Final Exam

The final exam will be closed book, paper-based, hand-written and will cover the entire semester, i.e., Chapters 9-16 and 18. The structure of the final exam will be similar to those of the midterm exam. This will comprise of a batch of multiple choice and a series of long questions to be completed. Marks will be based on accurate statistical analyses and on the interpretation of the results of the statistical analyses. Students need to bring a simple scientific calculator, pencils, and an eraser.

Preparing for Class and Notes

For learning to happen in any course, you must take an active role in the process. For this class, you are expected to come to class prepared and ready to learn, which requires you to review each chapter before class. Being prepared for class enables you to construct a knowledge base on which subsequent learning rests. For collaborative exercises, one grade will be provided to every group member based on the exercise deliverables. All exercises and assignments must be completed during the allotted period. There will be no exceptions. I emphasize group learning in my classes, as I believe group activities help students develop varied skills that are increasingly important in the work environment. Working in groups will provide each student the opportunity to develop team skills, improve communication skills, and leverage personal experiences to contribute to group tasks.

Grading System

Descriptor	Alpha Grade	4.0 Scale	Percent
Excellent	A+	4.0	> 93.9
	A	4.0	87 – 93.9
	A-	3.7	80 – 86.9
Good	B+	3.3	77 – 79.9
	B	3.0	74 – 76.9
	B-	2.7	70 – 73.9
Satisfactory	C+	2.3	67 – 69.9
	C	2.0	64 – 66.9
	C-	1.7	60 – 63.9
Poor	D+	1.3	57 – 59.9
Minimum Pass	D	1.0	50 – 56.9
Failure	F	0.0	< 50

Proposed Schedule of Topics

Week#	Main Topic	Chapter	Assignments/Labs
1	Introduction to Statistics; Data; Surveys and Sampling.	1-3	Introduction to Course, MOODLE and MyLab Statistics (Pearson). Sections 1.1-1.3; 2.1-2.3; 3.1-3.8;
2	Displaying and Describing Categorical and Quantitative Data.	4-6	Assignment#1 Sections 4.1-4.5; 5.1-5.14; 6.1-6.5
3	Scatterplots, Association, and Correlation.		Lab#1 - Displaying and Describing Distributions
4	Introduction to Linear Regression	7-9	Assignment#2; Sections 7.1-7.7 Assignment#3; Sections 8.1-8.9
5	Randomness and Probability; Random Variables and Probability Distributions.		Assignment#4; Sections 9.1-9.12 Lab#2 - Linear Regression and Correlation
6	Sampling Distributions, Confidence Intervals for Proportion	10-12	Assignment#5 Sections 10.1-10.5;11.1-11.6;12.1-12.10
7	Testing Hypotheses About Proportions		Assignment#6 Lab#3 - Inferences for One-Sample
8	Confidence Intervals and Hypothesis Tests for Means – One Sample	13	MidTerm, Chapters 2-8 Assignment#7 Sections 13.1-13.6
9	Confidence Intervals and Hypothesis Comparing Two Sample Means	14	Lab#4 - Inferences for Two-Sample Assignment#8 Sections 14.1-14.4
10	Analysis of Variance (ANOVA) and its derivatives	15	Assignment#9 Lab#5 - One-way Analysis of Variance Sections 15.1-15.9
11	Reading Week		
12	Inference for Counts – Chi-Square Tests	16	Assignment#10 Sections 16.1-16.4
13	Inference for Correlation and Linear Regression	18	Assignment#11 Sections 18.1-18.6
14	Final Exam - Chapters Review	Relevant Sections as Above.	
15	Final Exam: - Written	9-18	

Please Note:

Date and time allotted to each topic is subject to change.

Performance Requirements and Student Services

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](#). The Keyano College credit calendar also has information about Student Rights and Code of Conduct. It is the responsibility of each student to be aware of the guidelines outlined in the Student Rights and Code of Conduct Policies.

Student Attendance

Class attendance is useful for two reasons. First, class attendance maximizes a student's 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 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; and
- 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 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 Code of Conduct Policies.

In order to ensure your understanding of the concept of plagiarism, [you must successfully complete the online tutorial found on \[ilearn.keyano.ca\]\(http://ilearn.keyano.ca\). Then print the certificate, sign it, and show it to each of your instructors.](#) Your course work may not be graded until you show this signed certificate.

Specialized Supports

The Student Services Department is committed to Keyano students and their academic success. There are a variety of student supports available at Keyano. Due to the continuing situation with the Covid-19 pandemic, the offered support services will be implemented through a model to respond to the restrictions in force at the time. In-person and virtual services will be offered. All Alberta Health Services guidelines will be followed for in-person appointments—wear a mask, maintain two meters of physical distance, use hand sanitizer, and stay home if you are unwell.

All student services are available during Keyano business hours: Monday to Friday, 8h30-16h30. The College is closed for statutory holidays. If you require support outside of regular business hours, please inform the support service team, and we will do our best to accommodate your needs.

Accessibility Services: provides accommodations for students with disabilities. Students with documented disabilities, or who suspect a disability, can meet with a Learning Strategist to discuss their current learning barriers and possible accommodations. Students who have accessed accommodations in the past are encouraged to contact us to request them for the semester. Please note that requesting accommodations is a process and requires time to arrange. Contact us as soon as you know you may require accommodations. For accessibility supports and to book an appointment, please contact accessibility.services@keyano.ca.

Accessibility Services also provides individual and group learning strategy instruction for all students, as well as technology training and supports to enhance learning. Meet with a Learning Strategist to learn studying and test-taking strategies for online classes. Schedule an appointment with the Assistive Technology Specialist to explore technology tools for learning. Book an appointment today by emailing accessibility.services@keyano.ca

Wellness Services: 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. Students may access services virtually and in-person.

Wellness Services welcomes students to participate in any of the group sessions offered throughout the academic year addressing topics including mindfulness and test anxiety.

Individual appointments can be made by emailing wellness.services@keyano.ca.

Library Services: provides students with research and information supports as they engage in their studies. Library staff are available to support you both online and in-person throughout the semester. For a detailed list of library supports and services, go to www.keyano.ca/library. For all inquiries, please email askthelibrary@keyano.ca or chat with us online.

Begin your research with the [Library's FIND page](#). Search for information and sources for your assignments using the OneSearch, the Library's Catalogue, or by searching in a specific database selected from the [A-Z Database List](#).

Individual support with us is available. For support with citations, research and other information needs, appointments can be booked using the online [Book A Librarian Calendar](#). For support with Moodle, educational tools for assignments, Microsoft Office, Zoom, Teams and more, book an appointment using the online [Educational Technology Support Calendar](#).

Research and subject guides are helpful resources when beginning your research, assignment, using new educational technology, or addressing other information needs. To view a subject or course-specific guide, check out the complete listing of online [Subject Guides](#).

To access additional research resources, including Citation Guides (APA, MLA, Chicago, or IEEE), go to the [Research Help Library page](#).

The Loanable Technology collection is available to support students in their learning pursuits, whether online, in person or both. Items available for borrowing include mobile projectors, webcams, noise-cancelling headphones, Chromebooks, and laptops. For an up-to-date list of technology available for borrowing as well as support available, go to the Library's [Loanable Technology webpage](#).

Academic Success Centre: The Academic Success Centre is a learning space in the Clearwater Campus (CC-119) at Keyano College. Students can gather to share ideas, collaborate on projects, get new perspectives on learning from our Academic Content Specialists, or use the Centre's educational resources. The Academic Success Centre provides academic support services to students registered in credit programs at Keyano College in the form of individual tutoring, writing support groups, facilitated study groups, workshops, and study space. Services are **free** to Keyano students.

Academic Content Specialists are available in the areas of Math, Science, Human Services, and English/Humanities. This covers all courses offered at Keyano. The Academic Success Coach can also be found in the Academic Success Centre.

For the most up to date information on how to book a session, please view [the Keyano Academic Success Centre homepage](#).

Academic Integrity: The goal of the Academic Success Centre is to foster a student's ability to learn effectively and independently. Students registered at Keyano College are welcome to drop by the Centre to visit with any of our Academic Content Specialists to discuss their academic concerns.

Availability: Monday to Friday: 8:30 a.m. – 4:30 p.m. Flexible times may be available upon request. Virtual and in-person sessions, please email to get in contact with our Academic Content Specialists. For the most up to date information on how to book a session, please view the [Academic Success Centre homepage](#).

Academic Success Coach: offers you support and access to resources for your academic success to help you to find the Keys to your Success. The Academic Success Coach will work with you to develop an academic success plan, develop your study and time management skills, and connect you with the right resources here at Keyano. Academic.success@keyano.ca is the best way to access resources during blended service delivery. The Academic Success Coach is located in the Skill Centre in CC-119 at the Clearwater Campus.

E-Learning

Technology and internet will impact your online learning experience. It's important that you can watch an online video and other course materials, take online quizzes and participate in a live class with your instructor and other students. Live/virtual classes will be hosted in Microsoft Teams or Zoom.

For all course delivery types, you will access your course resources on Keyano's learning management system, **Moodle (iLearn)**. Login in using your [Keyano username and password](#).

Keyano College operates in a Windows based environment, and having the correct tools for online learning is important. Here's a list of recommended system requirements.

Internet Speed

Minimum Internet speeds of 10 Mbps.

Recommended Internet speeds of 25 Mbps (especially if you are sharing your internet at home).

Check your internet speed with [Fast.com](#).

System requirements:

Microsoft Windows	Apple
<p>Minimum Requirements:</p> <p>A Windows 10 computer/laptop</p> <ul style="list-style-type: none"> · Minimum 4GB of RAM. · 10GB+ available hard drive storage. · Enough available hard drive space to install the Microsoft Office suite (approximately 3GB). <u>Microsoft Office</u> software is free to all Keyano students and employees. · Microphone, webcam and speakers. A headset with a microphone is recommended. · System updates must be regularly installed. · Anti-Virus / Anti-Malware software 	<p>Minimum Requirements:</p> <p>A Macintosh (V10.14 and above) computer/laptop</p> <ul style="list-style-type: none"> · Minimum 4GB of RAM. · 10GB+ available hard drive storage. · Enough available hard drive space to install the Microsoft Office suite (approximately 3GB). <u>Microsoft Office</u> software is free to all Keyano students and employees. · Microphone, webcam and speakers. A headset with a microphone is recommended. · System updates must be regularly installed. · Anti-Virus / Anti-Malware software.
<p>Recommended Requirements</p> <ul style="list-style-type: none"> · 8GB of RAM · A method of backing up/synchronizing to local or cloud-based storage such as OneDrive is highly recommended. This is included if you complete the setup of KeyanoMail and download MS Office using your Keyano email for free. 	<p>Recommended Requirements</p> <ul style="list-style-type: none"> · 8GB of RAM · A method of backing up/synchronizing to local or cloud-based storage such as OneDrive is highly recommended. This is included if you complete the setup of KeyanoMail and download MS Office using your Keyano email for free.
<p>Chromebooks are not recommended as they are not compatible with testing lockdown browsers.</p> <p>A Microsoft Surface or iPad or iPad Pro may be possible alternatives in some program areas.</p>	

Specific Department Requirements:

Business and OA programs require Windows 10.
Other programs may utilize Windows based tools as well.

Computer Software

Students will be able to get access to Microsoft Office 365 for free using Keyano credentials by [clicking here](#).

Recording of Lectures and Intellectual Property

Students may only record a lecture if explicit permission is provided by the instructor or by Accessibility Services. Even if students have permission to record a lecture or lecture materials, students may not share, distribute, or publish any of the lectures or course materials, this includes any recordings, slides, instructor notes, etc. on any platform. Thus no student is allowed to share, distribute, publish or sell course related content (instructor, or students) without permission. It is important to recognize that the Canadian Copyright Act contains provisions for intellectual property.

The [Academic Integrity Policy](#) provides additional information on Keyano College's expectations from students as members of the intellectual community.

ITS Helpdesk

If you are having issues with your student account, you can contact the ITS Helpdesk by emailing its.helpdesk@keyano.ca or calling 780-791-4965.