

Course ID:	Course Title:	Winter 2024
STA 210	Introduction to Business Statistics	Prerequisite:
		Credits: 3

Class Information		Instructor Information		Important Dates	
Delivery:	In Class	Instructor:	John Wiest, M.Sc.	First Day of Class:	January 10, 2024
Days:	W, F	Email:	jwiest@ambrose.edu	Last Day to Add/Drop:	January 21, 2024
Time:	11:15 am – 12:30 pm	Phone:	(403)410-6915	Last Day to Withdraw:	March 28, 2024
Room:	A1085-2	Office:	L2115	Last Day to Apply for Coursework Extension:	April 2, 2024
Lab/Tutorial:	M 3:45 pm – 5:15 pm A2131	Office Hours:	Wed: 1:00PM – 4:00 PM, or by drop-in	Last Day of Class:	April 12, 2024
Final Exam:	TBA				

Important Dates and Information

For a list of all important dates and information regarding participating in classes at Ambrose University, please refer to the Academic Calendar at <https://ambrose.edu/academic-calendar>.

Written Assignment 1 DUE: Feb 9, 2024

Midterm Exam : March 1

Written Assignment 2 DUE: Apr 12

Course Description

This course is designed to give students a basic understanding of descriptive and inferential statistics. Emphasis is placed on practical application and students will learn to analyze and interpret basic statistical research. Topics include collection and presentation of data, descriptive statistics, introduction to probability theory, estimation, hypothesis testing, and linear regression. Students will also learn to use computer software to analyze data.

Expected Learning Outcomes

- Demonstrate an understanding of what “statistics” is
- Identify the role of statistics in business operations, analysis, and other problem-solving situations
- Analyze the advantages and drawbacks of different methods of viewing and describing data

- Choose the appropriate statistical technique based on a given situation
- Understand how probability, distributions, and hypothesis testing are used in statistics
- Interpret the results of statistical analyses, draw conclusions, and describe solutions
- Learn how to utilize Excel to help with introductory statistical analyses.

Textbooks

Lind, Douglas A.; Marchal, William G.; Wathen, Samuel A.;. (2021). *Statistical Techniques in Business & Economics* (18 ed.). New York, NY: McGraw-Hill.

ISBN 978-1-260-23947-8

Note, you are not required to get a paper version of this textbook. The assignments for our class will be posted online through our course **Connect** page. When you purchase access to the course **Connect** page you will also be given access to an e-book copy of the course textbook.

Course Schedule

Part 1: Descriptive Statistics (2-3 Weeks)

- Tabular and Graphical Methods
 - Types of Data
 - Level of Measurement
 - Frequency Tables
 - Grouped Frequency Tables
 - Graphical methods
 - Pie Charts, Bar Charts
 - Histograms, Polygons
- Numerical Methods
 - Describing Central Tendency
 - Measures of Variation
 - Percentiles, Quartiles, and Whiskers Displays

Part 2: Probability & Probability Distributions (3-4-weeks)

- The Concept of Probability
 - Sample Spaces and Events
 - Some Elementary Probability Rules
 - Conditional probability and Independence
- Discrete Random Variables
 - Two Types of Random Variables
 - Discrete Probability Distributions
 - Binomial Distributions
 - Poisson Distributions
- Continuous Probability Distributions
 - The Uniform Distribution
 - The Normal Probability Distribution
- Sampling & Sampling Distributions
 - Random Sampling
 - The Sampling Distribution of the Sample Mean
 - The Sampling Distribution of the Sample Proportion
 - Surveys and Errors in Survey Sampling

Part 3: Confidence Intervals & Hypothesis Testing (4-5 weeks)

- Confidence Intervals
 - z-Based Confidence Intervals
 - t- Based Confidence Intervals
 - Sample Size Determination
 - Confidence Intervals for a Population Proportion
- Hypothesis Testing
 - The Null and Alternative Hypotheses
 - Errors in Hypothesis Testing
 - z-Test about a Population Mean
 - t- Test about a Population Mean
 - z-Test about a Population Proportion
 - The Chi-Square Distribution

Part 4: Statistical Inferences Methods (1-2 weeks)

- Statistical Inferences Based on Two Samples
 - Comparing Two Population Means
 - Paired Difference Experiments
 - Comparing Two Population Proportions
 - The F-Distribution
 - Comparing Two Population Variances

Requirements:

All students will be required to gain access to our course **Connect** page. Information on accessing this webpage will be on the course moodle page. Course access should cost around CAD\$99.00. The online assignments will be accessible through this website only, so getting this access is essential.

All students should have, at minimum, a calculator capable of performing statistical functions (i.e. able to input a data set and compute mean, standard deviation, etc.). The TI BA-II calculator would work, as would a graphing calculator or a good scientific calculator. You will also require a laptop with a functioning version of Excel Software (please note, we will be introducing some ways to get Excel to do statistical work for us, and other spreadsheet software, like the one on your phone or many of the online versions, likely will not have the statistical and computing power you need).

Attendance:

Students are expected to attend all lectures and labs to ensure success on exams, and online assignments. Students not attending lectures may find themselves missing information not covered in the textbook, or learning contradictory information online. As for participation, your learning should be an ACTIVE process; I can't just dump information into your head. Those who participate tend to do better than those who sit and stare in silence, and definitely do better than those who don't show up. **ALSO**, if you miss a major deadline or a test due to absenteeism, and you don't make any effort to contact me about that, then your grades will certainly suffer. I am happy to work with you guys, but please don't try to take advantage of the situation. Unexcused missed assignments or tests will be left as zeroes.

Grade Summary:

Online Assignments:	30%
Written Assignments:	24%
Midterm Exam:	20%
Final Exam:	26%

- There will be an online assignment almost every week (there may not be one near the midterm). These assignments will be accessed via the course **Connect** page. Access to these assignments will be opened during the class tutorials and students are asked to come to tutorials to come to tutorial and work collaboratively with each other.
- The Written Assignments will be posted to the course Moodle page. These assignments will invite you to engage with spreadsheet software as a powerful tool to do statistical analysis. *Excel* is the preferred software choice for this. I realize that some Mac users may have *Numbers* rather than *Excel*, and while it is possible to use *Numbers* please be aware that it is nowhere near as powerful a tool as *Excel* and lacks much of the functionality that you may want. Similarly, the free online versions of *Excel* may be lacking in power and functionality. I am not ordering you to rush out and buy expensive software, but you need to be aware that workarounds for the spreadsheet software you choose will need to be found. Your submissions for these assignments will include *Excel* workbooks, instructions about which will be given in greater detail on the assignments themselves.
- The Midterm and Final Exams will be in person. During these exams you will be allowed
 - Your calculator
 - A set of notes that you create to bring into the exam
 - A pencil

If you need any special exam accommodations, please contact learning services in the Ambrose Student Centre as soon as possible to discuss this with them.

The available letters for course grades are as follows:

Grade	Interpretation	Percentage	Grade Points
A+	Excellent	95 to 100	4.00
A		90 to 94	4.00
A-		85 to 89	3.70
B+	Good	80 to 84	3.30
B		76 to 79	3.00
B-		72 to 75	2.70
C+	Satisfactory	68 to 71	2.30
C		64 to 67	2.00
C-		60 to 63	1.70
D+	Poor	55 to 59	1.30
D	Minimal Pass	50 to 54	1.0
F	Failure	0 to 49	0.00
P	Pass		No Grade Points

Because of the nature of the Alpha 4.00 system, there can be no uniform University-wide conversion scale. The relationship between raw scores (e.g. percentages) and the resultant letter grade will depend on the nature of the course and the instructor's assessment of the level of each class, compared to similar classes taught previously.

Please note that final grades will be available on student registration system. Printed grade sheets are not mailed out.

Other:

Math is best learned in a participatory manner. Please come to class prepared to engage with the materials, the instructor, and your classmates. It is up to you to ask questions when you're confused, try out new techniques and explore new ideas, and generally be an active learner.

Ambrose University Important Policies & Procedures:

Registration

Registration is the process of selecting and enrolling in classes for upcoming semesters. Only students who are registered will be permitted to attend class and receive a grade for the course. You are responsible for ensuring that the courses you take are appropriate for your program, that they do not have any scheduling conflicts, that they have the necessary prerequisites and that they meet all degree requirements.

Withdrawal From A Course

Prior to the Add/Drop deadline: through the student registration system whereby course(s) will be removed with no academic or financial penalty. After the Add/Drop deadline and until the Withdrawal deadline: through submission of the 'Withdrawal from Course' form whereby course(s) will remain on the permanent academic record/transcript with the symbol 'W'. (See ambrose.edu/registrar/request-forms.) Students who withdraw from more than 30 credits attempted at Ambrose University will be required to withdraw from their program. Students considering withdrawing from courses are encouraged to discuss with their Faculty Advisor and/or the Office of the Registrar questions relating to their withdrawal decision specifically relating to financial assistance, study permit requirements, prerequisites for subsequent courses, readmission, and/or graduation timeline. Students who do not formally withdraw from a course are still considered registered in the course, even if they are no longer attending classes. In this case, students will be assigned a grade based on coursework completed as per the course syllabus and are responsible to pay the tuition and fees assessed for the course. Under extenuating circumstances, students may request from the Office of the Registrar a course(s) withdrawal after the Withdrawal deadline and until the last day of classes. Extenuating circumstances typically consider situations such as medical emergencies, compassionate grounds, or unforeseen conditions/situations beyond the students' control that arise after the start of the semester and are considered on a case-by-case basis. Supporting documentation from a physician or Registered Health Professional must accompany this request.

Coursework Extensions

Should a request for a time extension on coursework exceed the end of the term, a *Coursework Extension Application* must be completed and submitted to the Office of the Registrar. The extension (if granted) will be recorded on the student record. Extensions are granted at the discretion of the instructor and registrar. If granted, time extensions do not excuse you from a final examination where one has been scheduled for the course. More conditions apply.

Exam Scheduling

Students who find a conflict in their exam schedule must submit a *Revised Final Exam Time Application* to the Office of the Registrar by the deadline noted in the Academic Calendar. Requests will be considered for the following reasons only: 1) the scheduled final examination slot conflicts with another exam; or 2) the scheduled final examination slot results in three consecutive examination periods. Travel is not considered a valid excuse for re-scheduling or missing a final exam.

Communication

Your Ambrose email account is the University's primary and official mode of communication with you. Information delivered to your Ambrose email is considered official notification. Ambrose University is not responsible for your failure to receive important information delivered to your Ambrose email.

Lecture Recording

The recording of lectures or any other classroom academic activity, other than an audio recording as an accommodation, is prohibited except at the discretion of the instructor. Any use other than that agreed upon with the instructor constitutes academic misconduct and may result in suspension or expulsion. Permission to allow a lecture recording is not a transfer of any copyrights, so such recordings may be used only for individual or group study with other students enrolled in the same class and may not be reproduced, transferred, distributed or displayed in any public or commercial manner. Student must destroy recordings in any, and all formats at the end of the semester in which they are enrolled in the class. All students recording lectures, must sign the Permission Form to audio record lectures which is available through the Office of the Registrar.

Standards of Behaviour in the Classroom Setting

Learning is an active and interactive process, a joint venture between student and instructor and between student and student. Some topics covered within a class may lead to strong reactions and opinions. It is important that Students understand that they are entitled to hold contradictory beliefs and that they should be encouraged to engage with these topics in a critical manner. Committing to this type of "active learning" significantly increases the learning experience for both teacher and student, and reflects the Christian imperative to pursue truth, which lies at the heart of the Ambrose educational experience. However, active discussion of controversial topics will be undertaken with respect and empathy, which are the foundations of civil discourse in the Classroom Setting. Primary responsibility for managing the classroom rests with the instructor. The instructor may direct a student to leave the class if the student engages in any behaviour that disrupts the classroom setting. If necessary, Ambrose security will be contacted to escort the student from class.

Academic Integrity

We are committed to fostering personal integrity and will not overlook breaches of integrity such as plagiarism and cheating. Academic dishonesty is taken seriously at Ambrose University as it undermines our academic standards and affects the integrity of each member of our learning community. Any attempt to obtain credit for academic work through fraudulent, deceptive, or dishonest means is academic dishonesty. Plagiarism involves presenting someone else's ideas, words, or work as one's own. Plagiarism is fraud and theft, but plagiarism can also occur by accident when a student fails or forgets to acknowledge to another person's ideas or words. Plagiarism and cheating can result in a failing grade for an assignment, for the course, or immediate dismissal from the university. Students are expected to be familiar with the policies in the current Academic Calendar that

deal with plagiarism, cheating, and the penalties and procedures for dealing with these matters. All cases of academic dishonesty are reported to the Academic Dean and become part of the student's permanent record.

Academic Policies

It is the responsibility of all students to become familiar with and adhere to academic policies as stated in the Academic Calendar. The academic calendar can be found at <https://ambrose.edu/academics/academic-calendar>

Privacy

Personal information (information about an individual that may be used to identify that individual) may be required as part of taking this class. Any information collected will only be used and disclosed for the purpose for which the collection was intended. For further information contact the Privacy Compliance Officer at privacy@ambrose.edu.

Academic Success and Supports

Accessibility Services

Academic accommodation is provided to Ambrose students with disabilities in accordance with the Alberta Human Rights Act and the Canadian Charter of Rights and Freedoms. Provision of academic accommodation does not lower the academic standards of the university nor remove the need for evaluation and the need to meet essential learning outcomes. Reasonable accommodations are tailored to the individual student, are flexible, and are determined by considering the barriers within the unique environment of a postsecondary institution. It can take time to organize academic accommodations and funding for disability-related services. Students with a disability who wish to have an academic accommodation are encouraged to contact Accessibility Services as early as possible to ensure appropriate planning for any needs that may include accommodations. Staff can then meet with students to determine areas to facilitate success, and if accommodations are required, ensure those accommodations are put in place by working with faculty.

Learning Services

Learning Services provides support with

- **research and communication skills** (e.g., writing a paper, researching, giving a presentation), and
- **subject-specific skills** (e.g., solving a chemistry problem, reconciling a general ledger, understanding a philosophical argument).

We offer workshops, one-to-one tutoring, and more, and all of our services are **free** to students currently enrolled at Ambrose University. To learn more, please visit <https://ambrose.edu/sas/learning-services>.

Mental Health Support

All of us need a support system. We encourage students to build mental health supports and to reach out when help is needed.

On Campus:

- Counselling Services: ambrose.edu/counselling

- For immediate crisis support, there are staff on campus who are trained in Suicide Intervention Skills and can help you access mental health support. See <https://ambrose.edu/student-life/crisissupport> for a list of staff members.
- For additional wellness resources go to the Ambrose wellness page: <https://ambrose.edu/wellness>

Off Campus:

- Distress Centre - 403-266-4357
- Alberta Mental Health Helpline - 1-877-303-2642 (Toll free)
- Sheldon Chumir Health Care Centre - 403-955-6200
- Emergency - 911

Sexual Violence Support

We are committed to supporting students who have experienced gender based sexual violence in the past or while at Ambrose. Many of the staff, faculty, and student leaders have received Sexual Violence Response to Disclosure training. We will support you and help you find the resources you need and you can access information about reporting. Information about the Sexual Violence policy and on and off campus supports can be found on our website— ambrose.edu/sexual-violence-response-and-awareness.

Off Campus:

- Alberta's Oneline for Sexual Violence - 1-866-403-8000 call or text
- Clinic: Sheldon Chumir Health Centre - 403-955-6200
- Calgary Communities Against Sexual Abuse - 403-237-5888
- Chat: www.calgarycasa.com

Note: Students are strongly advised to retain this syllabus for their records.