Course ID:	Course Title:	Winter 2022
STA 210	Introduction to Business Statistics I	Prerequisite: Math 30
		Credits: 3

Class Information		Instructor Information		Important Dates	
Delivery:	Online/In Class	Instructor:	John Wiest, M.Sc.	First Day of Classes:	January 10, 2022
Days:	Wed/Fri	Email:	jwiest@ambrose.edu	Last Day to Add/Drop:	January 23, 2022
Time:	10:00 AM – 11:15 AM	Phone:	(403)410-6915	Last Day to Withdraw:	March 18, 2022
Room:	Online/A2131	Office:	L2115	Last Day to Apply for Extension:	March 28, 2022
Lab/ Tutorial:	Mondays, 10:00AM – 11:30AM, A-1085-1	Office Hours:	Wed: 11:30 – 12:30, or by drop-in	Last Day of Classes:	April 14, 2022
Final Exam:	**Friday, April 22, 9:00AM – Noon, A2131**				

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 28
Midterm Exam : March 4
Written Assignment 2 DUE: Apr 14

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, correlation, and linear regression.

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

Introductory Business Statistics, Holmes, Illowsky, & Dean
https://openstax.org/details/books/introductory-business-statistics

Course Schedule

Part 1: Descriptive Statistics (2-3 Weeks)
- Tabular and Graphical Methods
  - Graphically Summarizing Qualitative Data
  - Pareto Charts
  - Graphically Summarizing Quantitative Data
  - Dot Plots
  - Steam-and-Leaf Displays
  - Contingency Tables
  - Scatter Plots
  - Misleading Graphs and Charts
- 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

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

Part 4: Statistical Inferences Methods (1-2 weeks)
- Statistical Inferences Based on Two Samples
  - o   Comparing Two Population Means

  - o   Paired Difference Experiments
  - o   Comparing Two Population Proportions
  - o   The F-Distribution
  - o   Comparing Two Population Variances
- Chi-Square Tests
  - o   Chi-Square Goodness-of-Fit Tests
  - o   A Chi-Square Test of Independence

Requirements:

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.). 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:

Honestly, we're in uncertain times, and I recognize that some of you may have difficulty attending due to illness or other mitigating factors. I will not be taking attendance, but I do recommend attending for your success. I will do my best to make sure that online resources are posted online in a timely and reasonable fashion so that those of you who miss classes will have a chance to catch up, but the onus will be on you to catch up on any missed materials. As for participation, your learning should be an ACTIVE process; I can't just dump information into your head. Those who participate, even online, 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 in these unprecedented times, 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:	20%
Written Assignments:	26%
Midterm Exam:	24%
Final Exam:	30%

- Access to the online assignments will be through the Lyryx Learning webpage (www.lyryx.com). Students will need to purchase access to these online assignments (it should be around $40). Details on the specific course section and how to access this will be on the course moodle page. If you do not purchase this access, you will not be able to complete the Online Assignments. I'm planning for there to be 4 Online Assignments.
- The Written Assignments will be posted to the course Moodle page. Hopefully, we will be back in person before the due dates for these happen, so submitting these should be done in person, on paper. That said, if we need to adjust this as time goes on I will keep you guys informed. 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 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 primarily be *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

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. The hope is that our return to in-person learning will allow greater engagement with the concepts at play, but it is still 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 Information:

Communication

All students have received an Ambrose e-mail account upon registration. It is the student's responsibility to check this account regularly as the Ambrose email system will be the professor's instrument for notifying students of important matters (cancelled class sessions, extensions, requested appointments, etc.) between class sessions.

Exam Scheduling

Students who find a conflict in their exam schedule must submit a Revised Examination Request form to the Registrar's Office by the deadline date; please consult the Academic Calendar. Requests will be considered for the following reasons only: 1) the scheduled final examination slot conflicts with another exam; 2) the student has three final exams within three consecutive exam time blocks; 3) the scheduled final exam slot conflicts with an exam at another institution; 4) extenuating circumstances. Travel is not considered a valid excuse for re-scheduling or missing a final exam.

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. Please refer to your professor regarding their electronic etiquette expectations.

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/content/academic-calendar-2.

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.

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 are normally granted for 30 days beyond the last day of the term.

Normally, Course Extension Applications will be considered only when all of the following conditions are met:

- the quality of prior course work has been satisfactory;
- circumstances beyond your control, such as an extended illness or death of a family member, make it impossible for you to complete the course work on time; and
- you submit *Coursework Extension Application* to the Office of the Registrar on or before the deadline specified in the Academic Schedule.

If granted, time extensions do not excuse you from a final examination where one has been scheduled for the course.

A temporary grade of TX will be assigned until a final grade is submitted in accordance with the new deadline. A final grade of F will apply to:

- all course work submitted after the end of the semester unless a coursework extension has been granted; and all course work submitted after the revised due date provided by an approved extension to coursework.

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.

Ambrose Writing Services
Ambrose Writing services provides academic support in the four foundational literacy skills—listening, speaking, reading, and writing. It also assists students with critical thinking and the research process. Throughout the academic year, students can meet with a writing tutor for personalized support, or they can attend a variety of workshops offered by Academic Success. These services are free to students enrolled at Ambrose University. Academic Success serves all students in all disciplines and at all levels, from history to biology and from theatre to theology. To learn more, please visit https://ambrose.edu/writingcentre

Ambrose Tutoring Services
Ambrose Tutoring Services provides support in specific disciplinary knowledge, especially in high-demand areas such as chemistry, philosophy, math and statistics, and religious studies. These tutors also coach students in general study skills, including listening and note-taking. During the academic year, Ambrose Tutoring Services offers drop-in tutoring for courses with high demand; for other courses, students can book a one-to-one appointment with a tutor in their discipline. These services are free to students enrolled at Ambrose University. To learn more, please visit https://ambrose.edu/tutoring.

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
- Peer Supportive Listening: One-to-one support in Student Life office. Hours posted at ambrose.edu/wellness.
- For immediate crisis support, there are staff on campus who are trained in Suicide Intervention and Mental Health First Aid. See ambrose.edu/crisissupport for a list of staff members.

Off Campus:
- Distress Centre - 403-266-4357
- Sheldon Chumir Health Care Centre - 403-955-6200
- Emergency - 911

Sexual Violence Support
All staff, faculty, and Residence student leaders have received *Sexual Violence Response to Disclosure* training. We will support you and help you find the resources you need. There is a website with on and off campus supports – ambrose.edu/sexual-violence-response-and-awareness.

Off Campus:
- Clinic: Sheldon Chumir Health Centre - 403-955-6200
- Calgary Communities Against Sexual Abuse - 403-237-5888

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