Course ID:	Course Title:	Winter 2019	
STA 220	**Introduction to Business Statistics II**	**Prerequisite:**	**STA 210**
		Credits:	**3**

Class Information		Instructor Information		Important Dates	
Days:	Tue/Thu	**Instructor:**	John Wiest	**First day of classes:**	Sept.4, 2019
Time:	8:15-9:30 a.m.	**Email:**	jwiest@ambrose.edu	**Last day to add/drop, or change to audit:**	Sept.15, 2019
Room:	A2212	**Phone:**	(403) 410-6915	**Last day to request revised exam:**	Nov. 1, 2019
Tutorial:	Mon 4:00-5:15 PM A2210	**Office:**	L2115	**Last day to withdraw from course:**	Nov. 18,2019
Final Exam:	Tues, Dec.17, 2019 A2212, 1:00-4:00 PM	**Office Hours:**	Tuesdays, 2:00 PM or drop-in	**Last day to apply for coursework extension:**	Nov. 25, 2019
				Last day of classes:	Dec. 11, 2019

Course Description

Building on the Introduction to Business Statistics I course, students will deepen their skills in data analysis and decision making under uncertainty using quantitative methods. Emphasis centers on regression analysis, modeling, time series forecasting, nonparametric methods, and statistical process control. Optimization modeling, simulation modeling, and data mining will also be introduced. These tools will be used in the context of business data and examples. This course also has a lab component.

Expected Learning Outcomes

- Demonstrate knowledge of regression analysis, modeling, time series forecasting, nonparametric methods, and statistical process control.
- Develop a basic understanding of optimization modelling, simulation modeling, and data mining.
- Analyze the advantages and drawbacks of different quantitative methods; demonstrate ability to apply statistical methods in a business context
- Show knowledge of computer-based statistical analysis and Excel spreadsheets, be able to choose and apply right tools while provide their statistical analysis
- Interpret the results of statistical analyses and spreadsheets outputs, draw conclusions to make decisions under uncertainty

Course Outline

Part 1: Experimental Design

- Experimental Design & Analysis of Variance (ANOVA)
    - Basic Concepts of Experimental Design
    - One-Way Analysis of Variance
    - The Randomized Block Design
    - Two-Way Analysis of Variance Review
- Multinomial Data & Chi-Square Tests
    - The Multinomial Experiment
    - Chi-Square Goodness of Fit Tests
    - A Chi-Square Test for Independence

Part 2: Regression Analysis: Simple Regression

- Using Simple Regression to Describe a Linear Relationship
- Model Assumptions and the Standard Error
- Testing the Significance
- Confidence and Prediction Intervals
- Simple Coefficients of Determination and Correlation
- Residual Analysis

Part 3: Regression Analysis: Multiple Regression

- Using Multiple Regression to Describe a Linear Relationship
- Model Assumptions and the Standard Error
- Testing the Significance
- Confidence and Prediction Intervals
- Multiple Coefficients of Determination and Correlation
- Multiple Regression and Model Building

Part 4: Time Series Analysis and Forecasting

- Time Series Patterns
- Forecast Accuracy
- Time Series Analysis and Forecasting Modeling:
    - Moving Averages
    - Exponential Smoothing
    - Trend Projection
    - Seasonality and Trend
    - Time Series Decomposition

Part 5: Special Topics

- Statistical Methods for Quality Control
    - Quality: Philosophies and Frameworks
    - Statistical Process Control
    - Control Charts
    - Acceptance Sampling
- Introduction to Decision Analysis
- Optimization and Simulation Modeling
- Non-Parametric Methods
- Data Mining

Textbook and Software

In order to do the assignments for this course, students must purchase a 12-month license to the XLSTAT software which includes the eBook version of the textbook (see author information below). Here is the link for the software/eBook bundle (ISBN 978-1-305-58644-4) from NelsonBrain.com. It currently costs $100. If you would like a paperback version or loose-leaf version of the textbook (each comes with an access card to the XLSTAT software), you may purchase it in the bookstore.

- Anderson, D. R., Sweeny, D. J., Williams, T. A., Camm, J. D., & Cochran, J. J. (2017*). Statistics for Business and Economics*, 13th ed. Boston: Cengage Learning.

Additional Requirements

All students should have a hand-held, non-programmable calculator capable of performing statistical functions (i.e. able to input a data set and compute mean, standard deviation, etc.). Calculators on smartphones or tablets will not be allowed during tests.

Course Requirements and Evaluation:

Course grading and evaluation will be conducted according to the following:

Assignments	40%
Midterm Exam	30%
Final Exam	30%

Note: During the exams, students will be allowed a page of handwritten, self-created notes. This formula sheet should contain any formulas the student feels they will need during the exams, as well as any comments they feel may assist them. Again, this sheet should be created by the students themselves to assist them both in studying and learning materials, and to assist them during the exams.

To pass the course, students must achieve an overall grade of at least 50%.

There will be 4 assignments as well as the midterm and final exams. All assignments and exams will involve the use of the XLSTAT software which comes bundled with the course textbook. During exams, the students will be expected to limit their laptop use to this software and not utilize any online resources or attempt to discuss problems with each other.

Submission of Assignments:

Assignments will be posted to the course Moodle Page and be due on dates that will be determined as the semester progresses. As assignments will involve a great deal of software usage, the assignments will be submitted primarily online to specific email addresses that will be listed on the assignments.

Class Participation and Attendance:

Students are expected to attend all lectures and labs to ensure success on exams, and quizzes. Students not attending lectures may find themselves missing information not covered in the textbook. Any student who is absent for an exam or misses an assignment due date should speak to the professor and, where possible, provide a doctor's note.

Grade Summary:

The available letters for course grades are as follows:

% Grade	Letter Grade	Description
95% to 100%	A+	
90% to 94%	A	Excellent
85% to 89%	A-	
80% to 84%	B+	
76% to 79%	B	Good
72% to 75%	B-	
68% to 71%	C+	
64% to 67%	C	Satisfactory
60% to 63%	C-	
55% to 59%	D+	
50% to 54%	D	Minimal Pass
0% to 49%	F	Failure

Because of the nature of the Alpha 4.00 system, there can be no uniform College-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.

Ambrose University Academic Policies:

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. If students do not wish to use their Ambrose accounts, they will need to forward all messages from the Ambrose account to another personal account.

Registration

During the **Registration Revision Period** students may enter a course without permission, change the designation of any class from credit to audit and /or voluntary withdraw from a course without financial or academic penalty or record. Courses should be added or dropped on the student portal by the deadline date; please consult the List of Important Dates. After that date, the original status remains and the student is responsible for related fees.

Students intending to withdraw from a course after the Registration Revision Period must apply to the Office of the Registrar by submitting a "Request to Withdraw from a Course" form or by sending an email to the Registrar's Office by the **Withdrawal Deadline;** please consult the List of Important Dates on the my.ambrose.edu website. Students will not receive a tuition refund for courses from which they withdraw after the Registration Revision period. A grade of "W" will appear on their transcript.

Students wishing to withdraw from a course, but who fail to do so by the applicable date, will receive the grade earned in accordance with the course syllabus. A student obliged to withdraw from a course after the Withdrawal Deadline because of health or other reasons may apply to the Registrar for special consideration.

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 List of Important Dates. 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.

Electronic Etiquette

Students are expected to treat their instructor, guest speakers, and fellow students with respect. It is disruptive to the learning goals of a course or seminar and disrespectful to fellow students and the instructor to use electronics for purposes unrelated to the course during a class session. Turn off all cell phones and other electronic devices during class. Laptops should be used for class-related purposes only. Do not use iPods, MP3 players, or headphones. Do not text, read, or send personal emails, go on Facebook or other social networks, search the internet, or play computer games during class. Some professors will not allow the use of any electronic devises in class. The professor has the right to disallow students to use a laptop in future lectures and/or to ask students to withdraw from the session if they do not comply with this policy. Repeat offenders will be directed to the Dean. If you are expecting communication due to an emergency, please speak with the professor before the class begins.

Academic Policies

It is the responsibility of all students to become familiar with and adhere to academic policies as stated in the Academic Calendar. 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.

Extensions

Although extensions to coursework in the semester are at the discretion of the instructor, students may not turn in coursework for evaluation after the last day of the scheduled final examination period unless they have received permission for a course Extension from the Registrar's Office. Requests for course extensions or alternative examination time must be submitted to the Registrar's Office by the deadline date; please consult the List of Important Dates. Course extensions are only granted for serious issues that arise "due to circumstances beyond the student's control."

Appeal of Grade

An appeal for change of grade on any course work must be made to the course instructor within one week of receiving notification of the grade. An appeal for change of final grade must be submitted to the Registrar's Office in writing and providing the basis for appeal within 30 days of receiving notification of the final grade, providing the basis for appeal. A review fee of $50.00 must accompany the appeal. If the appeal is sustained, the fee will be refunded.

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 college. 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.

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