

Credit Hours: 3

Contact Hours: This is a 3-credit course, offered in accelerated format. This means that 16 weeks of material is covered in 8 weeks. The exact number of hours per week that you can expect to spend on each course will vary based upon the weekly coursework, as well as your study style and preferences. You should plan to spend 14-20 hours per week in each course reading material, interacting on the discussion boards, writing papers, completing projects, and doing research.

Faculty Information: Faculty contact information and office hours can be found on the faculty profile page.

COURSE DESCRIPTION AND OUTCOMES

Course Description:

A study of data analysis, data production, and statistical inference. Areas of study include: surveys and designed experiments, randomization, causation, regression, and inference using hypothesis tests. This course also explores using statistical methods for the analysis of, data for an enterprise performance and quality, effectiveness, and marketability. Statistical software will be utilized to conduct a predictive analysis, analyze the results, and document the findings. The preparation of input data for analysis from a relational database using SQL is also performed.

Course Overview:

This course on Statistics in Business Analytics provides a survey of classical data analysis methodologies that are commonly used in many disciplines but the emphasis on analytics in business.

The methodologies span from data distributions to data modeling using regression analysis and other procedures that are frequently used in predictive analytics. The course is unique because concepts and methodologies are explained and analyzed through SAS and R. The course is designed and written in a way to maximize students learning through easily relatable examples and step-by-step procedures for analysis. The course is organized to build expertise from basic descriptive statistics to more advanced modeling and inference drawing from many real-world datasets.

Course Learning Outcomes:

1. Describe how findings from statistical studies are used to assess business performance and formulate strategic plans.
2. Describe the basic concepts of descriptive and inferential statistics, including central tendencies, distributions, sampling, correlations, probability, estimation, and regression analysis.
3. Demonstrate research literacy as critical consumers of research studies.
4. Utilize statistical software to perform predictive analyses of input data and the types of outputs possible.

5. Interpret the results of a statistical software analysis of data
6. Create a professional business document based on the results of statistical analysis.

PARTICIPATION & ATTENDANCE

Prompt and consistent attendance in your online courses is essential for your success at CSU-Global Campus. Failure to verify your attendance within the first 7 days of this course may result in your withdrawal. If for some reason you would like to drop a course, please contact your advisor.

Online classes have deadlines, assignments, and participation requirements just like on-campus classes. Budget your time carefully and keep an open line of communication with your instructor. If you are having technical problems, problems with your assignments, or other problems that are impeding your progress, let your instructor know as soon as possible.

COURSE MATERIALS

Required:

Elliot, A.C. & Woodward, W.A. (2015). *SAS essentials: Mastering SAS for analytics* (2nd ed.). Hoboken, NJ: John Wiley and Sons. ISBN-13: 978-1119042167

zyBooks. (2018). *Statistics for data analytics*. Retrieved from <https://www.zybooks.com/catalog/statistics-for-data-analytics/>

Required Technology:

SAS University Edition: https://www.sas.com/en_us/software/university-edition.html

The R Project: <https://www.r-project.org/>

Suggested Open Source Textbooks:

Open Intro Statistics: https://www.openintro.org/stat/textbook.php?stat_book=reset

Online Statistics Education: An Interactive Multimedia Course of Study: <http://onlinestatbook.com/>

NOTE: *All non-textbook required readings and materials necessary to complete assignments, discussions, and/or supplemental or required exercises are provided within the course itself. Please read through each course module carefully.*

COURSE SCHEDULE

Due Dates

The Academic Week at CSU-Global begins on Monday and ends the following Sunday.

- **Discussion Boards:** The original post must be completed by Thursday at 11:59 p.m. MT and Peer Responses posted by Sunday 11:59 p.m. MT. Late posts may not be awarded points.
- **Opening Exercises:** Take the opening exercise before reading each week's content to see which areas you will need to focus on. You may take these exercises as many times as you need. The opening exercises will not affect your final grade.

- **Mastery Exercises:** Students may access and retake mastery exercises through the last day of class until they achieve the scores they desire.
- **Critical Thinking:** Assignments are due Sunday at 11:59 p.m. MT.

WEEKLY READING AND ASSIGNMENT DETAILS

Module 1

Readings

- Chapters 1-2 in *SAS Essentials: Mastering SAS for Analytics*
- Holsapple, C., Lee-Post, A., & Pakath, R. (2014). A unified foundation for business analytics. *Decision Support Systems, 64*, 130-141.

Opening Exercise (0 points)

Discussion (25 points)

Mastery Exercise (10 points)

Critical Thinking (30 points)

Choose one of the following two assignments to complete this week. Do not do both assignments. Identify your assignment choice in the title of your submission.

Option #1: Setting Up SAS Studio – CLASS Dataset

The purpose of this Critical Thinking Assignment is to verify that you have successfully downloaded and installed SAS Studio onto your computer. In addition, you are asked to become familiar with SAS Studio environment through this assignment. First, download and install SAS Studio (see instructions linked in this assignment) and then complete the following steps:

- Under **Server Files and Folder**, right-click on **My Folders**. Choose **New** and click on **Folder**. It will prompt you to create a name for the new folder. Type “MIS445.” This creates a new folder called MIS445 under **My Folders**.
- Under **Libraries**, double-click on **My Libraries**. Double-click on **SASHELP**. You will see many permanent SAS data files. Choose the dataset called **CLASS**. Let’s export this dataset into the folder **MIS445**. Right-click on **CLASS** dataset and select **Export**. In the prompt window, choose **MIS445** folder and the file format as CSV.
- Now, go to **MIS445** folder and double-click on **CLASS.csv**. It will generate SAS codes to import (PROC IMPORT) and describe the structure of the data (PROC CONTENTS). Run this program by hitting the running man icon.
- Take a screenshot of the results from this code. The result title should say “The CONTENTS Procedure.”
- Using the results (under The CONTENTS Procedure), answer the following:
 1. How many observations and variables are there in the dataset?
 2. What is the file size (in KB)?

Copy and paste the screenshot into a Word document and answer the questions in item (e.). Submit the Word file in Canvas for grading.

Option #2: Setting Up SAS Studio – GAS Dataset

The purpose of this Critical Thinking Assignment is to verify that you have successfully downloaded and installed SAS Studio onto your computer. In addition, you are asked to become familiar with SAS Studio environment through this assignment. First, open SAS Studio (see instructions for downloading, installing, and launching SAS linked in this assignment, though you should have successfully downloaded, installed, and used SAS in Module 1).

Then complete the following steps:

- a. Under **Server Files and Folder**, right-click on **My Folders**. Choose **New** and click on **Folder**. It will prompt you to create a name for the new folder. Type "MIS445." This creates a new folder called MIS445 under **My Folders**.
- b. Under **Libraries**, double-click on **My Libraries**. Double-click on **SASHELP**. You will see many permanent SAS data files. Choose the dataset called **GAS**. Let's export this dataset into the folder **MIS445**. Right-click on **GAS** dataset and select **Export**. In the prompt window, choose **MIS445** folder and the file format as CSV. Name file as **GAS**.
- c. Now, go to **MIS445** folder and double-click on **GAS.csv**. It will generate SAS codes to import (PROC IMPORT) and describe the structure of the data (PROC CONTENTS). Run this program by hitting the running man icon.
- d. Take a screenshot of the results from this code. The result title should say "The CONTENTS Procedure."
- e. Using the results (under The CONTENTS Procedure), answer the following:
 1. How many observations and variables are there in the dataset?
 2. What is the file size (in KB)?

Paste your screen shot into a Word document and then type your answers for item (e.) and submit the Word file in your Canvas course for grading.

Module 2

Readings

- Chapters 3 (3.1-3.6) in *SAS Essentials: Mastering SAS for Analytics*
- Chapters 1.1-1.5 and 8 in zyBooks
 - **NOTE:** As you go through these chapter sections in zyBooks, you will encounter *participation activities*. Complete those activities as you arrive at them for your Check Your Understanding exercises for this module. They will greatly assist in your understanding and application of the content you are reading in the zyBook textbook!

Opening Exercise (0 points)

Discussion (25 points)

Mastery Exercise (10 points)

Critical Thinking (70 points)

Choose one of the following two assignments to complete this week. Do not do both assignments. Identify your assignment choice in the title of your submission.

Option #1:

According to Federal Reserve Bank of St. Louis, "*Gross domestic product (GDP) is the value of the goods and services produced by the nation's economy, less the value of the goods and services used up in production. GDP is also equal to the sum of personal consumption expenditures, gross private domestic investment, net exports of goods and services, and government consumption expenditures and gross*

investment. Real values are inflation-adjusted estimates—that is, estimates that exclude the effects of price changes.”

Using the dataset *FRED-realGDP.xls*, we will conduct exploratory analysis on the real U.S. GDP.

- a. Put your file in your my folder/MIS445 on your PC.
- b. Produce summary statistics of dataset. Explain the key characteristics of the dataset.
- c. What would be an appropriate graph for this dataset? Explain why this is appropriate.
- d. Produce the graph you chose in SAS.
- e. Develop a PowerPoint presentation or a Web-based presentation using digital tools such as Prezi or Slide Rocket, based on the information you examined in items (a)-(d) along with an introduction. Your presentation should have 4-10 slides. Every slide must contain notes that explain the points made on the slide.

For help with constructing an effective presentation, see the visual presentations page in the CSU-Global Writing Center. Submit either the PowerPoint file or a Word document containing the link to your online presentation.

Option #2:

Data mining is used in business to examine the patterns and relationships in order to make decisions. Suppose you work for a company and you are tasked with data mining for this company. Your initial task is to examine the population in Colorado.

- a. Go to the U.S Census Bureau website.
- b. Find the dataset for Colorado. The dataset contains the population estimate for each city in Colorado by year. Choose the most recent year.
- c. Considering only the cities with a population of 100,000 or greater, produce summary statistics of dataset using SAS. Explain the key characteristics of the dataset.
- d. Using SAS, produce a bar chart based on the subset dataset you located.
- e. Develop a PowerPoint presentation or a Web-based presentation using digital tools such as Prezi or Slide Rocket, based on the information you examined in items (a)-(d) along with an introduction. Your presentation should have 4-10 slides. Every slide must contain notes that explain the points made on the slide.

For help with constructing an effective presentation, see the visual presentations page in the CSU-Global Writing Center. Submit either the PowerPoint file or a Word document containing the link to your online presentation.

Portfolio Milestone (20 points)

Choose one of the following two milestones to complete this week based on the Portfolio Project option you selected in Module 1. Do not do both milestones. Identify your milestone choice in the title of your submission.

Option #1: Preparing for the Portfolio Project

Download the dataset *Telco_Extra_CSUGlobal.xls* and save to myfolders/MIS445 folder on your computer. Take a screenshot of SAS Studio showing the saved file. Paste the screenshot into a Word document and submit the file in Canvas.

Option #2: Preparing for the Portfolio Project

Choose an area of study on which you want to complete the Final Portfolio Project. It might also be a good idea to narrow down the area. For instance, you may be interested in how a certain foreign

exchange rate is affected by the oil price. As a milestone for the project, identify at least three websites where you can download the datasets. You can see a list of datasets linked in the MIS455_LargeDatasets document linked in this assignment.

Download a dataset (any dataset) from each website. In a Word document, list the website addresses along with the name of the datasets you downloaded. Submit your document in Canvas.

Module 3

Readings

- Chapters 1.5-1.11 in zyBooks
 - **NOTE:** As you go through these chapter sections in zyBooks, you will encounter *participation activities*. Complete those activities as you arrive at them for your Check Your Understanding exercises for this module. They will greatly assist in your understanding and application of the content you are reading in the zyBook textbook!

Opening Exercise (0 points)

Discussion (25 points)

Mastery Exercise (10 points)

Critical Thinking (60 points)

Choose one of the following two assignments to complete this week. Do not do both assignments. Identify your assignment choice in the title of your submission.

Option #1:

R is a free statistical software that is frequently and widely used. Go to R-Project for Statistical Computing to download the R software to your computer (follow the instructions provided in the attached R Installation Instructions sheet). The R Project website provides a brief introduction to R that you may also want to review.

Like SAS, R is code-driven software that provides computation and graphics easily. This means that you need to write code in order to obtain the results. In this CT assignment, you will write codes to find the z-scores. Some useful R code examples are given in Sections and 1.3 and 1.5 of zyBooks.

Data integration is a way to combine datasets. Z-scores are used in data integration to provide an easy way to compare datasets. For instance, we cannot compare USD/EUR foreign exchange rate to the U.S. unemployment rate because they are two separate variables measured in different units.

In this CT assignment, we will calculate and interpret the z-scores. We will be using the *mtcars* dataset in R. More information about this dataset can be found on the Motor Trend Car Road Tests webpage of the R Datasets Package website. To complete the assignment, follow the steps below:

- a. In the R console, type *mtcars*. This shows the whole dataset.
- b. Using R, calculate the mean and standard deviation for the variables: mpg, cyl, disp, hp, drat, wt, qsec, gear, carb.
- c. Using R, calculate the maximum values for the same variables in (b).
- d. Using R, calculate the z-scores for the maximum values.
- e. Interpret each z-score in (d). Is the maximum value unusual? Explain why or why not.

Take a screenshot of each problem from parts (a) - (d) and paste them into a Word document. Also, directly type your answer to (e) on this document and submit the Word file in Canvas.

Option #2:

R is a free statistical software that is frequently and widely used. Go to R-Project for Statistical Computing to download the R software to your computer (follow the instructions provided in the attached R Installation Instructions sheet). The R Project website provides a brief introduction to R that you may also want to review.

Like SAS, R is code-driven software that provides computation and graphics easily. This means that you need to write code in order to obtain the results. In this CT assignment, you will write code to find the probabilities. Some R example code to find the probabilities under specific distributions are given in Section 1.11 of zyBooks. For each problem, write an R code to compute each probability.

(a) Binomial Distribution: $X \sim \text{Bin}(10, 0.7)$

- (i) $P(X = 2)$
- (ii) $P(X \leq 2)$
- (iii) $P(X > 2)$
- (iv) $P(1 \leq X \leq 7)$

(b) Normal Distribution: $X \sim N(0, 4)$. Note that variance is 4 and, hence, the standard deviation is 2.

- (i) $P(X < 3)$
- (ii) $P(X > 3)$
- (iii) $P(1 < X < 3)$

(c) Choose either (a) or (b) and interpret the results in a real-life scenario. Make sure to define X and interpret each probability.

For parts (a) and (b), take screenshots of R codes and the answers. Copy and paste the screenshot(s) into a Word document and submit the Word file in Canvas.

Module 4

Readings

- Chapters 1.13-1.14, 1.16, 2.1, 2.2 in zyBooks
- Chapters 9.1-9.2 in *SAS Essentials: Mastering SAS for Analytics*

Opening Exercise (0 points)

Discussion (25 points)

Mastery Exercise (10 points)

Critical Thinking (60 points)

Choose one of the following two assignments to complete this week. Do not do both assignments. Identify your assignment choice in the title of your submission.

Option #1:

In this CT assignment, we will examine a real dataset and make appropriate decisions based on confidence interval.

Download the dataset *MORTGAGE30US.xls*. This dataset contains 30-year fixed rate mortgage weekly averages from 1/7/2010 to 8/16/2018. Put your dataset into in the myfolders/MIS445 on your computer. Then complete the following steps and questions:

- a. Using SAS, produce an appropriate graphical summary of the dataset. Why did you choose this graph? Explain.
- b. Using SAS, compute the mean, standard deviation, and a five-number summary of the dataset. Describe the center and spread.
- c. Using SAS, construct a 95% confidence interval for the mean weekly averages. Interpret this confidence interval.
- d. A mortgage broker claims that the mean rate will be higher than 4.60% in the following week. Based on the confidence interval, is this a reasonable claim? Explain.

Take the screenshots of the SAS output and paste them into a Word document along your answers to the questions above. Clearly label the questions and answers. Submit the Word file in Canvas.

Option #2:

In this CT assignment, we will examine a real dataset and make appropriate decisions based on hypothesis test.

Download the dataset *EXUSEU.xls*. This dataset contains US/Euro monthly foreign exchange (FX) rate from 1/1/2010 to 8/1/2018. Each observation in the dataset represents a rate at which U.S. dollar is exchanged for Euro. Put your dataset into in the myfolders/MIS445 on your computer and then complete the following steps and questions:

- a. Using SAS, produce an appropriate graphical summary of the dataset. Why did you choose this graph? Explain.
- b. Using SAS, compute the mean, standard deviation, and a five-number summary of the dataset. Describe the center and spread.
- c. A business analyst claims that the mean U.S./Euro FX rate would be 1.25. We want to test this claim.
 - (i) Write the null and alternative hypotheses.
 - (ii) Using SAS, perform a t-test providing SAS output that includes the p-value.
 - (iii) Write a decision based on this problem context.

Take the screenshots of the SAS output and paste them into a Word document along with your answers to the questions above. Clearly label the questions and answers. Submit the Word file in Canvas.

Module 5

Readings

- Chapters 2.3-2.4 in zyBooks

Opening Exercise (0 points)

Discussion (25 points)

Mastery Exercise (10 points)

Critical Thinking (60 points)

Choose one of the following two assignments to complete this week. Do not do both assignments. Identify your assignment choice in the title of your submission.

Option #1:

In this CT assignment, we will use R software to analyze a dataset *GoogleAmazonStock.xlsx*. It contains daily closing stock prices for Google and Amazon from 8/22/2017 to 8/22/2018. When we examine stock prices (or other financial assets) we often transform them into a (simple) return series. The return series are computed by the formula: $(\text{present price}/\text{past price}) - 1$. The dataset contains both stock prices and return series.

- a. Using R, construct time series (line) plots for both stock prices and return series. R functions *plot* or *ts.plot* can create the plot. Describe the patterns and compare the plots.
- b. Based on the return series, can we claim that the mean Amazon return series is higher than that of Google?
 - (i) What would be an appropriate test of the claim above? Explain.
 - (ii) Write the null and alternative hypotheses.
 - (iii) Using R, perform the test.
 - (iv) Write the decision in the problem context.

Take the screenshots of the R graphs and output as well as the code. Paste them into a Word document along with your answers to the questions above. Clearly label the questions and answers. Submit the Word file in Canvas.

Option #2:

In this CT assignment, we will use R software to analyze the dataset *BTC-USD.xlsx*.

Cryptocurrency is a digital asset which can work as a medium of exchange. Bitcoin is one of the most popular cryptocurrencies. It was introduced in 2009 and reached its price at \$19,000. The dataset *BTC-USD.xlsx* contains the closing Bitcoin prices from 1/1/2017 to 8/21/2017 and 1/1/2018 to 8/21/2018. When we examine stock prices (or other financial assets) we often transform them into a (simple) return series. The return series are computed by the formula: $(\text{present price}/\text{past price}) - 1$. The dataset contains both prices and return series.

- a. Using R, construct time series (line) plots for both stock prices and return series. R functions *plot* or *ts.plot* can create the plot. Describe the patterns and compare the plots.
- b. Based on the return series, can we claim that the mean 2018 series is higher than that of 2017?
 - (i) What would be an appropriate test of the claim above? Explain.
 - (ii) Write the null and alternative hypotheses.
 - (iii) Using R, perform the test.
 - (iv) Write the decision in the problem context.

Take the screenshots of the R graphs and output as well as the code. Paste them into a Word document along with your answers to the questions above. Clearly label the questions and answers. Submit the Word file in Canvas.

Portfolio Milestone (30 points)

Choose one of the following two milestones to complete this week based on the Portfolio Project option you selected in Module 1. Do not do both milestones. Identify your milestone choice in the title of your submission.

Option #1:

To further prepare for Portfolio Project Option #1, complete the following:

Using SAS, create histograms for the variables: age, years at current address, income, and churn (review the Portfolio Project Option #1 description for how this data will be used in your final project). Copy and paste the graphs into a Word document and submit the file in Canvas.

Option #2:

You must choose a study topic for your final Portfolio Project if you are going to complete Option #2. Using a Word document, please provide the following:

1. The study objective (questions)
2. Sources of dataset(s) or website address(es)
3. Statistical methodology you will use.

Submit your answers in a Word document in Canvas. Watch for feedback from your instructor to help further guide your process as you conduct your analyses.

Module 6

Readings

- Chapters 2.5, 8.7 (Scatter plots), & 9 in zyBooks

Opening Exercise (0 points)

Discussion (25 points)

Mastery Exercise (10 points)

Critical Thinking (90 points)

Choose one of the following two assignments to complete this week. Do not do both assignments. Identify your assignment choice in the title of your submission.

Option #1: Regression Model – A Paper

Download and open the data file *Telco_Extra_Global.xls*. Your goal is to create a regression model that can predict the income based on age in years. Put your dataset into the myfolders/MIS445 on your computer and then complete the following steps and questions:

- a. Create a scatter plot for age vs. income.
- b. Fit a linear regression model in SAS.
- c. How good is the overall fit of the income determination model? (Use both R^2 as well as the F statistics to justify your answer.)
- d. Compute the predicted income for a 27-year-old individual.

Copy and paste any data or tables into the paper and label each section clearly. Additionally, ensure you have answered all of the questions. Your well-written paper should be between two to four pages in length. Follow APA format, according to CSU-Global Guide to Writing and APA. Include a title page and reference page. Cite at least one outside academic source other than the textbook, course materials, or other information provided as part of the course materials.

Option #2: Regression Model – A Presentation

Download and open the data file *Telco_Extra_Global.xls*. Your goal is to create a regression model that can predict the income based on age in years. Put your dataset into the myfolders/MIS445 on your computer and then complete the following steps and questions:

- a. Create a scatter plot for age vs. income.

- b. Fit a linear regression model in SAS.
- c. How good is the overall fit of the income determination model? (Use both R^2 as well as the F statistics to justify your answer.)
- d. Compute the predicted income for a 27-year-old individual.

Present your findings and model creation in an MS PowerPoint presentation or in a Web-based presentation tool like Prezi or Slide Rocket. Your presentations should have eight to twelve slides. Every slide must contain a “Notes Section” with full explanation of the slide’s content.

Follow APA format, according to CSU-Global Guide to Writing and APA. Include a title slide and a slide citing references. These two slides are in addition to the eight to twelve used in the presentation. Cite at least one outside academic source other than the textbook, course materials, or other information provided as part of the course materials.

For help with constructing an effective presentation, see the visual presentations page in the CSU-Global Writing Center. Submit either the PowerPoint file or a Word document containing the link to your online presentation.

Module 7

Readings

- Chapter 10 in zyBooks

Opening Exercise (0 points)

Discussion (25 points)

Mastery Exercise (10 points)

Module 8

Readings

- Chapter 12.1-12.6 in zyBooks

Opening Exercise (0 points)

Discussion (25 points)

Mastery Exercise (10 points)

Portfolio Project (300 points)

Choose one of the following two projects to complete this week. Do not do both projects. Identify your assignment choice in the title of your submission.

Option #1:

This assignment uses the data file *Telco Extra CSUGlobal.xls*. This data file concerns a telecommunications company's efforts to reduce churn in its customer base. Each case corresponds to a separate customer and records various demographic and service usage information. The data file contains the data on about half of the customers of the company, selected at random. In order to maintain the privacy of the customers, the identifying information (specific address, Social Security number) was stripped out.

The income data was purchased from an outside vendor. The telecommunications company would like to get a better understanding of customers who churn, as well as predict the income of a customer so that the company need not spend money purchasing the income data from an outside vendor.

Examine the 34 variables in the Telco data file in terms of their labels and values. Develop a research report to include the following components. Use SAS to produce the outputs and graphs.

1. Introduction of the purpose of your paper. You should write this section after completing parts 2-6.
2. Provide the sample characteristics in terms of age, years at current address, gender, level of education, income, marital status, region, custcat, and churn of the respondents in the sample based on the results of descriptive statistics you perform on the nine variables. Provide an appropriate graph for each of the variables using SAS.
3. Choose *churn* to be the dependent variables and the other six variables mentioned in part (2). Omit the variable *income* for this part. Perform multiple linear regression analysis. This is to be done in SAS Studio.
4. What would be the hypotheses in part (3)?
5. Interpret the SAS output in terms of strength and direction of the relationship.
6. Now, repeat parts (3)-(5) using income as the dependent variable. Omit the variable *churn*.

Summarize your results in both analyses. Also, state any surprises or unexpected findings. Do statistical results support your hypotheses, strength, and direction?

Copy and paste the SAS results and graphs in a Word document in addition to your answers. Ensure everything is clearly labeled. The report must be 10-12 pages long, *including* a title page and reference page (the report itself should be eight to ten pages). Cite two to three academic sources other than the textbook, course materials, or other information provided as part of the course materials. Follow APA format, according to CSU-Global Guide to Writing and APA.

Option #2:

Using the dataset(s) you've chosen in Module 5 Portfolio Project Milestone, perform an appropriate analysis to answer your study objective question(s).

As an example, your study question might be, "What were the factors that affected the gasoline price at the pump in the U.S. in 2013?" In this case, you could select the gasoline price at pump in the U.S. in 2013 as a response variable. After learning about this variable and doing some research, identify one or more classification (independent) variable(s) that may be affecting your selected response variable. Your classification (independent) variable may be a quantity or a category. For instance, daily temperature could be an example of independent variable that could be a factor.

If both of your variables (independent and dependent) are quantitative, perform correlation and regression analysis; however, if your classification variable is a category and you have more than two means to compare, perform analysis of variance (ANOVA).

Your analysis should be comprehensive, using SAS or R, including all the required components of the selected analysis, such as r , R^2 , residuals, forecast equation ($y = \text{intercept} + \text{slope} * x$; where y is response (dependent) variable and x is independent variable). In the case of ANOVA, develop an appropriate table and test your hypothesis.

The written report must be 10-12 pages long, *including* a title page and reference page (the report itself should be eight to ten pages). It should have an introduction stating the problem definition or questions, a body that contains the supporting analysis (including descriptive and graphical summaries), and a conclusion paragraph that addresses your findings. Cite two to three academic sources other than the textbook, course materials, or other information provided as part of the course materials. Follow APA format, according to CSU-Global Guide to Writing and APA.

COURSE POLICIES

Grading Scale	
A	95.0 – 100
A-	90.0 – 94.9
B+	86.7 – 89.9
B	83.3 – 86.6
B-	80.0 – 83.2
C+	75.0 – 79.9
C	70.0 – 74.9
D	60.0 – 69.9
F	59.9 or below

Course Grading

20% Discussion Participation
0% Opening Exercises
8% Mastery Exercises
37% Critical Thinking Assignments
35% Final Portfolio Project

IN-CLASSROOM POLICIES

For information on late work and incomplete grade policies, please refer to our [In-Classroom Student Policies and Guidelines](#) or the Academic Catalog for comprehensive documentation of CSU-Global institutional policies.

Academic Integrity

Students must assume responsibility for maintaining honesty in all work submitted for credit and in any other work designated by the instructor of the course. Academic dishonesty includes cheating, fabrication, facilitating academic dishonesty, plagiarism, reusing /re-purposing your own work (see *CSU-Global Guide to Writing and APA Requirements* for percentage of repurposed work that can be used in an assignment), unauthorized possession of academic materials, and unauthorized collaboration. The CSU-Global Library provides information on how students can avoid plagiarism by understanding what it is and how to use the Library and Internet resources.

Citing Sources with APA Style

All students are expected to follow the *CSU-Global Guide to Writing and APA Requirements* when citing in APA (based on the APA Style Manual, 6th edition) for all assignments. For details on CSU-Global APA style, please review the APA resources within the CSU-Global Library under the “APA Guide & Resources” link. A link to this document should also be provided within most assignment descriptions in your course.

Disability Services Statement

CSU–Global is committed to providing reasonable accommodations for all persons with disabilities. Any student with a documented disability requesting academic accommodations should contact the Disability Resource Coordinator at 720-279-0650 and/or email ada@CSUGlobal.edu for additional information to coordinate reasonable accommodations for students with documented disabilities.

Netiquette

Respect the diversity of opinions among the instructor and classmates and engage with them in a courteous, respectful, and professional manner. All posts and classroom communication must be conducted in accordance with the student code of conduct. Think before you push the Send button. Did you say just what you meant? How will the person on the other end read the words?

Maintain an environment free of harassment, stalking, threats, abuse, insults or humiliation toward the instructor and classmates. This includes, but is not limited to, demeaning written or oral comments of an ethnic, religious, age, disability, sexist (or sexual orientation), or racist nature; and the unwanted sexual advances or intimidations by email, or on discussion boards and other postings within or connected to the online classroom. If you have concerns about something that has been said, please let your instructor know.