



**IS 6520 - Data Visualization (3 credit hours)**

**Paul R. Carter College of Business Administration / Graduate School of Business**

## **Table of Contents**

[Mission Statement](#)  
[Course Information](#)  
[Instructor Information](#)  
[Course Communication](#)  
[Additional Comments For This Course](#)  
[Integration Of Faith And Learning](#)  
[Course Materials](#)  
[Required Technology](#)  
[Minimum Technical Skills](#)  
[Canvas](#)  
[Technical Support](#)  
[University Assessment](#)  
[Learning Outcomes](#)  
[Course Schedule](#)  
[Course Requirements](#)  
[Grading Policy](#)  
[Reservation Statement](#)  
[Institutional Policies](#)  
[Institutional Academic Support Services](#)  
[Institutional Student Support Services](#)

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### MISSION STATEMENT

**University Mission Statement:** *“Harding's mission is to provide a quality education that will lead to an understanding and philosophy of life consistent with Christian ideals.”*

**College Mission Statement:** *“To prepare Christian business professionals for lives of service.”*

### COURSE INFORMATION

**Prerequisites / Co-requisites:** none

**Catalog Description:** The goals of this course are to understand how visual representation can help in the analysis and understanding of complex data, how to design effective visualizations, how to create interactive dashboards and visualizations, and how to storyboard and effectively communicate using visualization.

**Part of Term/Semester, Year, Location:** Fall, 2019 - Online

### INSTRUCTOR INFORMATION

Mrs. Emmie Mercer  
Assistant Professor of Information Systems  
Paul R. Carter College of Business Administration

### INSTRUCTOR CONTACT INFORMATION

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### COURSE COMMUNICATION

During this course, interactions between students and/or faculty should take place in Canvas, Harding's learning management system (frequently called an LMS). If you need to email me about the course, please use [emercer@harding.edu](mailto:emercer@harding.edu). My goal is to reply to your communication within one (1) business day. If it is a holiday or a weekend, please keep in mind that a business day may mean more than one (1) day.

During this course, online office hours can also be arranged at your request. We can schedule a call or we can use technology like Google Hangout or Zoom. These tools are especially helpful when it comes to discussing class concepts and theories, as we can share screens, use white boards to draw equations, etc.

If you need to contact me about another issue (e.g., sickness, an unforeseen hospitalization, a situation beyond your control, prayers, etc.) contact me by email or phone. If you send me an email, please include “IS 6520” in the subject line of your email message.

Bottom line, I am here for you. Please reach out to me if I can be of assistance or service to you.

## Netiquette

*"Do you see a man who speaks in haste? There is more hope for a fool than for him."* – Prov. 29:20 (NIV)

*"A word aptly spoken is like apples of gold in settings of silver."* – Prov. 25:11 (NIV)

*"Let your conversation be always full of grace, seasoned with salt, so that you may know how to answer everyone."* – Col. 4:6 (NIV)

*"A gentle answer turns away wrath, but a harsh word stirs up anger. The tongue of the wise commands knowledge, but the mouth of the fool gushes folly."* – Prov. 15: 1-2 (NIV)

*"Be kind and compassionate to one another..."* – Eph. 4:32 (NIV)

Let's briefly talk about online decorum (referred to as (n)etiquette). As servants of Christ, we must know how to address each other via all methods of communication - whether online or on-ground. We realize that in an online classroom, students may be across the globe - all the more reason to state what to expect when communicating online. According to *The Quality Matters (QM) Higher Education Rubric: Fifth Edition (2014)*, learner behavior may be culturally influenced, thus it is important that detailed standards for communication are applied to the course. While the list is not all inclusive, the following video reinforces the importance of abiding by generally accepted rules of online netiquette. When it comes to our communication, let's remember the following: Harding University is a Christian University and expectations are that the relationship and communication style between one another should reflect Harding's Christian mission.

## ADDITIONAL COMMENTS FOR THIS COURSE

Since this course is being offered in an online format, all course assignments, exams, etc., will be conducted within Canvas. You will not be required to travel to campus in order to give a presentation or to take exams in the testing center.

This class may utilize both synchronous and asynchronous formats. For asynchronous assignments, you are not required to be online at the same time that your fellow students or I are online. If a particular assignment is synchronous, you will be required to be online at the same time that your fellow students or I are online. Please consult the assignments area of Canvas for synchronous/asynchronous information.

## INTEGRATION OF FAITH AND LEARNING

*"Never satisfied are the eyes of man."* Proverbs 27:20.

Tony Reinke writes in his book, *Competing Spectacles*, that images and visualizations have the power to reveal the motives in our hearts, tug the strings of our actions, and want our celebration, awe, time and outrage (Reinke, 2019). In today's age of competing digital spectacles, images and media are competing for our time, attention, and money, and our eyes will feed on, and often blindly believe, whatever comes our way (Reinke, 2019). Christian businesspersons need to understand how to tell truthful, unembellished and compelling stories, while still treasuring Christ in the media age.

## REQUIRED MATERIALS

1. *Storytelling with Data: A Data Visualization Guide for Business Professionals* by Cole Knaflic, 1<sup>st</sup> Edition, 2015; ISBN: 978-1119002253
2. *Visual Analytics with Tableau* by Alexander Loth, 1<sup>st</sup> Edition, 2019; ISBN: 978-1119560203

You may purchase the textbook from the [Harding University Bookstore](#), [Amazon](#), etc.

## SUPPLEMENTAL MATERIALS

There may be supplemental materials (e.g., journals, articles) that serve to provide additional coverage of lecture

topics. Any such required supplemental materials will be provided in Canvas (or linked) and will be clearly noted in the appropriate Module.

## REQUIRED TECHNOLOGY

Harding University students enrolled in online classes must have access to an appropriate digital device and a reliable Internet connection. A laptop or desktop is still the recommended device for online learning; the Canvas interface was optimized for desktop displays. Broadband connectivity is required, as many classes incorporate rich media content.

### Hardware/Operating Systems

- A personal computer running Microsoft Windows 8 / 10 / or Apple Macintosh running OS X
- Camera/microphone/headphones (sometimes called peripherals)

### Software (Tableau Desktop)

Before installing Tableau Desktop, be sure your machine meets the necessary requirements for this application. Tableau Desktop is available for Windows and Mac. Page 5 and 6 of the required textbook, *Visual Analytics with Tableau*, outlines the minimum requirements for a Windows installation.

As outlined on page 6 of the required textbook, *Visual Analytics with Tableau*, to download Tableau Desktop, you must be logged in to your machine as an administrator and make sure you have the rights to install software. Take the following steps to install Tableau Desktop:

- Navigate to [www.tableau.com/tft/activation](http://www.tableau.com/tft/activation) to download the latest version of Tableau Desktop.
- Select “Get Started” and on the form, enter your school email address for Business e-mail and enter the name of your school for Organization.
- Activate with your class-specific product key: TCMB-3260-BE20-F806-0570
- Already have a copy of Tableau Desktop installed? Update your license in the application: Help menu -> Manage Product Keys.
- Students can continue using Tableau after the class is over by individually requesting your own one-year license through the Tableau for Students program located at: Tableau [Student](#) Support Page  
Tableau Privacy Policy  
Tableau Accessibility Policy

Some Mac users may experience technical issues with certain publisher related course software. For this reason, a PC is recommended.

To see which browsers are supported by Canvas, how to update your browser, and additional required components (e.g., Flash and Java) please visit [Canvas](#).

For mobile users, there is a Canvas app available from the Google Play Store or the Apple iTunes store.

Because technology changes rapidly, the information contained within this requirement may change, and without advance notice.

## ZOOM

Zoom is a tool that provides video conferencing and distance communication capabilities, which we will use in this class.

- [Zoom’s Accessibility Policy](#)
- [Zoom’s Privacy Policy](#)

## MINIMUM TECHNICAL SKILLS

During this course, it is expected that students will possess the following set of minimum skills:

- An ability to use a computer
- Competence with Canvas (Harding's LMS)
- Competence with email and file attachments
- Competence with software (e.g., Microsoft Office Suite)
- Installing software
- Competence with search engines (e.g., Google)
- Competence in connecting to cloud services such as Google Sheets
- Competence in accessing existing user accounts or setting up free user accounts (e.g., IFTTT, Twitter, YouTube)

## CANVAS

Canvas is the learning management system (LMS) used by Harding's online courses. For additional information relating to Canvas, including tutorials, please visit [Harding's IST Canvas page](#) or [Instructure Canvas Help Center](#).

## CANVAS, INTERNET or TECHNOLOGY OUTAGE

As an online learner, you must be able to manage technical difficulties, as power outages, connection problems and other technical issues are always a possibility. Technology will sometimes fail; for this reason, it is advisable to complete your assigned work prior to the due date.

Instructor - If your instructor experiences a power outage, an Internet service outage, an LMS (Canvas) or other technical issue that significantly affects online assignments, the ability to grade assignments, or the instructor/student communication channel is significantly disrupted, adjustments to due dates will be made, as appropriate.

Student - If you experience a power outage, Internet service outage, LMS (Canvas) or other technical issue, you are held responsible for completing your assigned work in a timely manner. Harding University is not responsible for the student's access to a working computer or reliable Internet service. An Internet outage or computer issue is not an excuse for late work. A backup plan for reliable Internet service and a working computer is prudent. Should you experience any such issues, communicate with your instructor in a timely manner.

## TECHNICAL SUPPORT

The first point of contact for questions and concerns relating to your online course is your instructor, who will provide you instructions on how to proceed. For technical assistance or to report a problem, Harding's e-Learning Help Desk is available Monday - Friday between 8:00 a.m. – 5:00 p.m. CST.

Phone: 501-279-5201

Email: [elearning@harding.edu](mailto:elearning@harding.edu) Website: [eLearning website](#)

Again, please remember that your instructor should be your first point of contact.

## UNIVERSITY ASSESSMENT

Harding University, since its charter in 1924, has been strongly committed to providing the best resources and environment for the teaching---learning process. The board, administration, faculty, and staff are wholeheartedly committed to full compliance with all criteria of the Higher Learning Commission and Schools. The university values continuous, rigorous assessment at every level for its potential to improve student learning and achievement and for its centrality in fulfilling the stated mission of Harding. Thus, a comprehensive assessment program has been developed that includes both the Academic units and the Administrative and Educational Support (AES) units. Specifically, all academic units will be assessed in reference to the following Expanded Statement of Institutional Purpose: **The University provides programs that enable students to acquire essential knowledge, skills, and dispositions in their**

## **academic disciplines for successful careers, advanced studies, and servant leadership.**

In addition to the university compliance with Higher Learning Commission, the College of Business Administration adheres to the standards of assessment set forth by the Association of Collegiate Business Schools and Programs (ACBSP), a business departmental accreditation agency. ACBSP focuses on teaching excellence in the classroom and high academic standards throughout the business programs. As such, the College of Business is dedicated to compilation and analysis of assessment data for the purpose of maximizing student learning in all of the business programs.

Assessment is becoming more important in all aspects of the operation of Harding University. The university provides programs that enable students to acquire essential knowledge, skills, and dispositions in their academic disciplines for successful careers, advanced studies, and servant leadership. There is a good probability that what you learn in this course will be assessed in broader measures of student achievement such as standardized exams and/or licensing exams. The ultimate goal of assessment is that Harding University will become a stronger institution of higher learning.

As a part of the assessment process, the following learning outcomes are present.

### **MSIS PROGRAM LEARNING OUTCOMES (PLO)**

Students will:

1. Apply *systems thinking* to evaluate business processes and Identify opportunities for IT-enabled organizational improvements.
2. Apply *analytical thinking* to decompose organizational problems, projects, etc. into component parts, for the purpose of redesign.
3. Demonstrate effective *collaboration* skills and use of collaborative tools.
4. Demonstrate effective *written communication* such as research papers, position papers, system investment proposals, policies etc.
5. Apply *critical thinking*, to security-based decisions.
6. Demonstrate *creativity* in project management and the development of solutions.
7. Evaluate *ethical decisions* in respect to sensitive corporate data.
8. Design and implement *technical solutions* in chosen domain, in accordance with compliance standards and organizational goals.

### **COURSE LEARNING OUTCOMES (CLO) and their relationship to PLO's**

Students will:

1. Detect and understand stories within datasets and extract insights from that data. (PLO 1)
2. Present data visually to enhance audience comprehension of findings and insights. (PLO 8)
3. Critique ineffective or misleading visualizations and apply data visualization best practices, including choosing the appropriate chart type for the situation and avoiding visualization techniques that can mislead an audience. (PLO 2, PLO 7)
4. Act as data-driven visual storytellers for optimal presentation of trends, patterns and insights. (PLO 6)
5. Communicate insights about data in various formats, including oral presentations, written reports and interactive visualizations. (PLO 4)
6. Create professional business reports and make effective client presentations of their work. (PLO 4)
7. Find and download public data from open data portals. (PLO 3)
8. Analyze datasets visually using Tableau Desktop. (PLO 8)
9. Construct static charts and interactive dashboards using Tableau Desktop. (PLO 2)

### **MODULE LEARNING OUTCOMES (MLO) and their relationships to CLO's**

## Module 1

Students will:

1. Download and use Tableau (CLO 8)
2. Understand and examine the different products that make up the Tableau application suite and user interface (UI) (CLO 8)
3. Identify data that is ready for analysis (CLO 8)
4. Create connections to files and databases (CLO 8)
5. Create your first data visualization (CLO 9)
6. Combine different data tables using Joins and Unions (CLO 8)
7. Change metadata and data types in your data model (CLO 8)

## Module 2

Students will:

1. Recognize misleading, confusing, and substandard graphs (CLO 3)
2. Examine ethical considerations surrounding data visualizations (CLO 3)
3. Illustrate who you want to communicate to (audience), what you want to communicate (the recommended action), and how you want to convey that information (method of communication) (CLO 1)
4. Choose an appropriate chart type or visual display (CLO 2)
5. Identify recommended elements to avoid when visualizing data (CLO 3)
6. Construct simple chart types in Tableau, including bar charts, scatter plots, and line charts (CLO 9)
7. Construct more complex chart types in Tableau, including bullet graphs, waterfall charts and slope charts (CLO 9)
8. Construct legends, filters, and hierarchies to your Tableau analysis (CLO 9)
9. Illustrate the logic of how Tableau charts are assembled (CLO 8)
10. Examine and download public data-sets for further analysis (CLO 7)

## Module 3

Students will:

1. Create aggregate functions and recognize when to use which type of aggregation in Tableau (CLO 9)
2. Construct and edit calculated fields in Tableau (CLO 9)
3. Build interactivity in Tableau via parameters (CLO 9)
4. Recognize cognitive overload practices such as chart clutter, lack of visual order and non-strategic use of contrast (CLO 2)
5. Examine the Gestalt Principles of Visual Perception in order to understand how audiences interact with and create order out of visual stimuli (CLO 2)
6. Debate methods to remove clutter in order to improve your visual and to clarify the story (CLO 2)
7. Practice focusing an audience's attention with use of preattentive attributes such as size, color, and page position (CLO 2)
8. Identify and illustrate data-set discoveries in order to intrigue the audience (CLO 4)
9. Explain the key insights discovered in your data-set (CLO 1, CLO 5)

## Module 4

Students will:

1. Practice using Tableau Table Calculations for in-depth analysis (CLO 8)
2. Construct dimension-spanning calculations with Tableau Level of Detail (LOD) Expressions (CLO 9)

3. Practice traditional design concepts such as offering visual affordances as well as making designs accessible and aesthetically pleasing (CLO 2)
4. Examine and critique effective and noneffective visual displays for consideration, discussion, and suggestions for improvement (CLO 3)

## **Module 5**

Students will:

1. Design and format Tableau symbol maps, filled maps, and density maps (CLO 2)
2. Combine visualizations with tooltips in Tableau (CLO 2)
3. Analyze complex statistical questions using the Tableau Analytics pane (CLO 8)
4. Diagram trends, clusters, and forecasts based on data (CLO 4)
5. Construct meaningful, impactful, and actionable stories from our data (CLO 1, CLO 4)
6. Prepare data visually and communicate insights about data in a written report (CLO 2, CLO 5)

## **Module 6**

Students will:

1. Create interactive dashboards in Tableau (CLO 9)
2. Combine several charts into one dashboard (CLO 9)
3. Construct filter and highlight actions to add dashboard interactivity (CLO 4, CLO 9)
4. Construct URL actions to embed websites (CLO 4, CLO 9)
5. Follow rules for dashboard best practices in order to improve the design, effectiveness, and usability of your dashboard (CLO 2, CLO 9)

## **Module 7**

Students will:

1. Design a Data Story in Tableau (CLO 1, CLO 9)
2. Discuss and apply the process to comprehensively tell a story using Tableau Data Stories (CLO 1, CLO 2, CLO 9)

## **Module 8**

Students will:

1. Examine and discuss alternatives to pie charts (CLO 3)
2. Save workbooks to the web using Tableau Public (CLO 5)
3. Share workbooks created in Tableau Public (CLO 5)
4. Discuss additional data visualization tool options (CLO 4)
5. Design animated and interactive play controls in Tableau (CLO 6, CLO 7)

## **COURSE SCHEDULE**

There are a number of places in Canvas to locate the course schedule, which contains all of the assignments and other activities for the course: the Course Summary, the Canvas Calendar, and the Weekly Task Lists. You can view the details of each assignment/activity by selecting them individually.

## **COURSE REQUIREMENTS**

**Discussions (8% of final grade) – 90 pts**

8

Last revised: 3/16/2021



All students will be expected to participate each week in the online discussion boards. Each week's discussion question or topic will be posted on Canvas on the Monday of each weekly module. Your initial post responding to that question will be posted in Canvas no later than 11:59 pm CST on Wednesday. Your initial reply to at least one other student's post is due Friday of that week. So, for example, your post in response to a question in Week 2 is due on Wednesday of Week 2, and your reply to at least one other student's Week 2 post is due Friday of Week 2. The discussion ends on Sunday at 11:59 pm of Week 2.

The discussion will fall into one of the three general areas:

- Answer discussion questions posed by the instructor, inspired by that week's readings and lectures. You will be required to post an answer to the instructor's question as well as respond to at least one of your fellow students' posts. You are free to contribute more responses if you wish.
- Provide feedback on fellow students' assignments-in-progress. For example, you may be expected to share one of the charts from your Narrated PowerPoint Slideshow the week before the assignment is due and then comment on at least one of your fellow students' charts. These comments should be at least 100 words in length and shall offer constructive comments and suggestions for improvement.
- Mini-assignments, such as finding a chart online and writing a brief critique of it or participating in "Makeover Monday", in which participants take an existing chart and redesign it using Tableau. In the case of mini-assignments, you will be expected to both post your own assignment and respond to at least one of your fellow students' assignments. These comments should be at least 100 words in length.

### **Participation (8% of final grade) – 90 pts**

The very nature and depth of graduate studies mandate students participate in all course activities. Each student's participation is essential for the success of the entire class and the student. True exchange of graduate-level academic ideas and thoughts can only be achieved with everyone actively participating. The value received from this course will be commensurate with the effort and thought you put into it.

As an online student, participation is required and is an essential part of this course. For this course, participation is included in your weekly Discussion Questions. All students are expected to participate each week in the online discussion boards. Half of the Discussion Question assignment included the participation grade. Refer to the Discussion Question syllabus to see point distribution.

### **Weekly Assessments (14% of final grade) – 160 pts**

Weekly assessments will vary from week-to-week and will cover content from the week. Refer to Canvas for details.

### **Data Project Proposal (4% of final grade) – 45 pts**

Submit your Data Project Proposal through Canvas as a Word document (.doc or .docx). Find a dataset that will serve as the basis for the other assignments in this course (Two Charts, Narrated PowerPoint Slideshow, Data Memo, Interactive Dashboard, and Interactive Story). This dataset can be located on an open data portal or can be a dataset that you have access to through your work. The dataset can be on any topic you choose - ideally, choose one that interests you and/or is about where you live or where you have visited. Selecting a topic you enjoy will make it much more interesting to complete the assignments in this course. A list of public data portals to get you started is listed at the bottom of this assignment.

Write a brief (500-word maximum) report that includes the following questions, and your answers to them:

1. What dataset will you use for your final report? (Describe your dataset, and either include a link to where I can find it online or submit it as a spreadsheet along with your report).
2. Describe the dataset. What kind of data does it contain?
3. Is there anything about your data that you do not understand? (i.e., meaning of a column heading). How will you find this missing information?

4. What are some questions you hope to answer with your data? List at least three (you do not need the answers to the questions at this point).

Some things to keep in mind about this assignment:

- Some students, regrettably, rush this assignment and don't invest the time required to find a good dataset. Remember, you will analyze, critique, manipulate, clean and format this dataset for 7 more weeks. So, this week, take the time to choose wisely.
- Review the requirements for the other assignments in this course carefully to ensure that the dataset you choose is rich enough to allow you to do detailed, in-depth analysis on it for the remainder of this course. Generally speaking, “summary data” that is only a few dozen rows long is not enough. Raw data (hundreds or thousands of rows) is needed.
- Avoid data that is too big. Most newer versions of Excel cannot open files that are much bigger than a million rows. Tableau technically can open files that are 10 million rows or larger but, in practice, working with files that big will slow down your computer. For that reason, a good rule of thumb is to pick a dataset that is less than a million rows.
- As you progress through the course, if you find your dataset is not detailed enough to properly complete future assignments, you will have the option to supplement it with additional, related datasets. For example, if your original dataset was on SAT scores in your state, you could supplement it with school-level state statistics on GPA scores for comparison purposes.
- The dataset that you choose should have raw data in spreadsheet form (XLS, XLSX, CSV). It should not be a website with an online map or chart. You need to be able to access the raw data for this project so you can create your own interactive chart.
- If the dataset you choose is from a specialized area, make sure you explain it in a way that someone who does not know anything about the topic – including your fellow classmates and me – can understand. As an example, I do not know much about hockey, so make sure you explain any hockey statistics in simple terms a non-hockey-fan might understand.
- Do not use a proprietary dataset or a dataset with sensitive information since we will be sharing our findings with your classmates.
- If, in answering the questions above, you realize that the data you have is too complicated or you do not understand it properly, pick another dataset. Choosing an overly complex dataset is destined to make the project more difficult and increase the risk of errors.
- While your dataset can be from an international source, it must be in English.

### **Two charts, a “headline” and an “elevator pitch” (7% of final grade) – 80 pts**

The charts for this assignment, along with the headline, should be submitted through Canvas as a Word document (.doc or .docx). Paste the charts into the Word document rather than submitting separately as image files. Submit the elevator pitch as VoiceThread via Canvas. Refer to Canvas for instructions.

This assignment will show the results of your initial analysis of your dataset. It should include:

1. A single sentence identifying the most interesting thing you have discovered in your dataset, much like the headline of a news story. This leading headline should intrigue the reader and make him or her want to learn more.
2. Two static charts (i.e., single image), created using Tableau, that illustrate key insights you have discovered in your data. At least one of the two charts should support your headline.
3. To accompany the charts and headline, a persuasive “elevator pitch” of 1 minute or less in which you are seen on camera explaining why the insights you have discovered are worth noticing. For the elevator pitch, there should be nothing on the camera except yourself (i.e., no slides, no charts). Wear business-appropriate attire and be seated in an office-style setting or standing up (i.e., no relaxing on the couch, keep it professional).

Some things to keep in mind about this assignment:

- Charts need clear and engaging titles that contain the “takeaway” message you want your reader to have rather than an uninteresting, technical description.
- Review the Data Visualization Best Practices discussed in class and make sure your charts follow these guidelines.
- Show your charts to someone unacquainted with the data (a friend) and see if they can easily understand your intent.
- If you are recording your elevator pitch on a smartphone, hold the phone horizontally rather than vertically.

### **Narrated PowerPoint Slideshow (7% of final grade) – 80 pts**

On VoiceThread, produce a PowerPoint Slideshow explaining some key findings about your data and a clear recommendation about what action to take because of your findings. Narrate the slideshow to produce a recorded presentation between 10 and 13 minutes long. See rubric for more details.

The presentation should include:

- Between 10-15 slides.
- The charts in your slide can include those from the previous assignment. If so, make sure you incorporate any feedback you received – from the instructor and your fellow classmates – about how to improve those charts.
- Your first slide, which should appear on the screen before your narration begins, needs to identify your intended audience. In most cases, imagine your audience as the head of a company that you work for that needs to make a decision based on your analysis.
- Include at least four static charts that you created in Tableau based on your data, though you can include more charts if you desire. I recommend pulling your charts into a Dashboard before exporting them from Tableau as static charts. This allows you to size them in the best way for your slides rather than using the default layout on a Tableau Sheet.
- Your slides should include some visual elements other than static charts that help illustrate your points and keep viewer interest (photographs, clip art, etc.)
- When submitting the VoiceThread, click the button to ‘share with class’.

Some things to keep in mind about this assignment:

- Your narration only needs to be oral. The only thing that needs to be on screen is your slides. You do not need to appear on video in the corner.
- Avoid transitions or reveals on your slides (i.e. bullet points appearing one after the other, one image superimposed on top of another, words sliding in from the sides). Each slide should appear on its own, in its entirety, while you are talking.
- Remember that people may be viewing your presentation from the back of a room. Make sure everything is big enough for people to see.
- Your presentation should be more than just reading your slides. Instead, your slides should be moderately simple, showing key images, key ideas or key charts that you then enrich with your oral presentation.

### **Data Memo (written report) (21% of final grade) – 240 pts**

Submit the Data Memo Outline, Data Memo Progress Report and the Data Memo through Canvas as a Word document (.doc or .docx). See Canvas for details concerning Outline and Progress Report.

Write a Data Memo outlining the key findings of your data analysis as well as suggestions for how your intended audience should respond to your findings. The assignment will build on the findings in your Narrated PowerPoint Slideshow, exploring them in greater detail.

Your Data Memo should:

- Be written professionally rather than conversationally, include compelling insights, and not be written in first-person. Think of this as a relatively brief analytical memo rather than a long, detailed report; therefore, do not include a table of contents or executive summary. Do include a bibliography and title page.
- Be between 1,500 and 2,000 words (excluding the bibliography).
- Include at least six (and no more than 10) static charts. The charts in your report can include those from previous assignments. If so, make sure you incorporate feedback you received about how to make those charts better. Your charts should be seen throughout the memo, as close as possible to the related text.
- On the title page, include a brief description of the intended audience for your data memo.
- Reference at least five outside sources (studies, news articles, reports) that put your data into context. For example, if you have data about vaccination rates at local schools, an outside source could be a study examining the vaccine exemption rates at the same local schools.
- For all outside sources, briefly summarize what the outside source says and explain how it is relevant to your data.
- Your report should include a clear recommendation for your audience of what steps they should take in response to your analysis. Base this suggestion on your intended audience and what they are in a position to do in response to your analysis. For example, a manager could hire more staff. An advocacy group could create a new awareness campaign.

### **Interactive Dashboard (9% of final grade) – 100 pts**

Using Tableau, create a dashboard that uses interactive maps and/or charts to explain the results of your data analysis and anticipates the viewers' questions. The charts or maps should be those used in your Data Memo. Submit your dataset and Dashboard through Canvas. Be sure to submit a Tableau Packaged Workbook (.twbx) file and not a Tableau Workbook (.twb) file.

Include the following elements in your dashboard:

- At least four main visuals (and no more than 6).
- Include a dashboard title and icon.
- The charts can include those from previous assignments. If so, make sure you incorporate any feedback you received - from the instructor and your fellow students – about how to improve the charts.
- At least one visual should include a map or chart that is alterable by the user using a Filter or Highlighter.
- Include a static chart that takes advantage of tooltips so users can learn more about a given data point. The tooltip should include at least two visuals.
- Include a second tooltip that includes a dynamic sentence, changing the color to show the dynamic views.

### **Interactive Story (9% of final grade) – 100 pts**

Using Tableau, create an Interactive Data Story that uses maps and charts — some interactive, some not — to explain the results of your data analysis and anticipates the user's questions about your data. Submit through Canvas as a Tableau Packaged Workbook (.twbx) file. See Canvas for details.

### **Exams (13% of final grade) – 134 pts**

There is a timed midterm exam in Week 4 and a timed final exam in Week 8. All exams are online via Canvas. There are no make-up exams under any circumstances. Due dates and details are on Canvas.

### **GRADING POLICY**

The student will be provided weekly feedback during the duration of the course. This may be in the form of narrative information and/or component grades, and will be provided in Canvas' Gradebook. It is possible that supplemental feedback may also be provided in Canvas' email. However, the intent of this feedback is to inform the student of how

well expectations for these components have been met.

Component details may include, but are not limited to, the following: exams, mid-term, quizzes, case studies, current events, projects, research papers, presentations, and participation.

The final grade will be computed by using the following percentages.

### Grading Components

Assignment	Total Points	Overall % of Final Grade
Discussions (8 total)	90	8%
Weekly Participation Grade (8 total)	90	8%
Weekly Assessments	160	14%
Data Project Proposal	45	4%
Two charts, a “headline” and an “elevator pitch”	80	7%
Narrated PowerPoint Slideshow	80	7%
Data Outline, Progress Report, Memo (Written Report)	240	21%
Interactive Dashboard	100	9%
Interactive Story	100	9%
Exams	134	13%
<b>TOTAL</b>	<b>1119</b>	<b>100%</b>

From time to time, an individual may inquire about extra credit and other ways to pull their grade up. There will not be a formal extra credit project, assignment, etc. Once the final grade has been calculated, the course is over and no further work will be accepted for grading. Therefore, any requests to complete special assignments or projects in an effort to change one’s posted grade cannot be honored.

### Letter Grade Guideline

Letter Grade	Average Threshold	Points
A (Excellent)	90%	1119-1002
B (Good)	80%	1001-890
C (Average)	70%	889-778
D (Below Avg)	60%	777-666
F (Failure)	<60%	665-0

### Rubrics

There are grading rubrics associated with your assessment in this course. It is good practice to review rubrics before you submit your assignments. It will help you formulate your responses and earn full points. Rubrics are located in two places: 1) discussions – when you go to the discussion forum you will see the gear wheel at the top right of the discussion page. Click on it, a drop down appears and one of the options in that menu is “Show Rubric.” 2) assignments (non-discussions) – the rubric is displayed at the bottom of the assignment description.

### Deadlines/Late Policy

Students are encouraged to work ahead of deadlines. The deadline for any given assignment represents the date from which points will be taken off for being late. It is important that the posted deadlines for a given assignment are met. This represents the self-paced nature of online learning. Assignments may be turned in up to 2 days after the deadline, and will be charged a 20% late penalty. Therefore, no assignment may be turned in after two days have passed from the original deadline. As graduate business students, you are held to a high standard. While this policy may seem harsh, what would happen if you missed a deadline at work (yet alone by four days)? No assignment will be accepted after the ending date of the class has passed.

There are exceptions to the rule above. If there is a problem and you are unable to meet a deadline, the onus is on you, the student, to communicate with the instructor in a timely fashion. If you are ill and cannot meet a deadline, you are responsible for contacting the professor before the deadline, not after it passes. After all, if you were too ill to go to work, you wouldn't call-in the day after you failed to show up to work. If you will be traveling for work, have an illness, family problems, a vacation scheduled, etc., please contact your instructor in advance. If an exception is granted, there must be an agreement between the instructor and the student on a mutually agreeable due date for the missed assignment(s).

## **Writing Style/Referencing**

As the accepted writing style of business, psychology, education, and social science programs across the globe (American Psychological Association, 2014), the American Psychological Association publication format (otherwise known as APA Style) is the required writing style for all MSIS students.

Learning to conduct scholarly research is a natural part of academic work, and will help you succeed at Harding University. Conducting scholarly, professional and industry research is required for this course. If a source is questionable, e.g., Wikipedia, other wikis, ask.com, answers.yahoo.com, etc., please contact your professor for clarity and permission before using a source that falls outside the scope of traditional academic standards, especially at the graduate level. It is also important that you show how these references assisted your academic work. So, make sure you reference your sources in every assignment you submit, no matter how mundane the assignment may be. Failure to properly and completely cite your sources may constitute plagiarism or cheating, as delineated in the Academic Code of Conduct. Bottom line, remember these two simple rules: 1) give credit where credit is due, and 2) if it isn't your words, ideas or thoughts, it is someone else's and needs to be cited. The following two websites may be of value to you.

- [APA Resources](#)
- [Purdue Online Writing Lab](#)

## **Turnitin**

During this course, the originality of various assignments submitted by students will be checked via [Turnitin](#), an organization leading the way in both plagiarism detection and student learning. Turnitin provides institutions, faculty, and students with a variety of academic tools, including originality checks, online grading capabilities, and even peer reviewed feedback. Turnitin is integrated with the assignments settings used by the instructor when preparing assignments in Canvas.

## **Student Declaration**

Submitting an electronic document at Harding University constitutes an agreement with the following declaration:

- I affirm that the work submitted is of my own accord, is original, and contains the necessary and appropriate citations, where the work is of another source.
- I affirm that this assignment has not previously been submitted in any form.
- When submitting assignments to Turnitin, I acknowledge and adhere to its disclaimer statements.
- I affirm to uphold Harding University's [Code of Academic Integrity](#).

## **RESERVATION STATEMENT**

The instructor reserves the right to modify and update any part of the syllabus where necessary. It is your responsibility to stay up to date with any changes communicated by the professor.

## **INSTITUTIONAL POLICIES**

## Code of Academic Conduct

Students of Harding University are expected to be honorable and to observe standards of [academic conduct](#) appropriate to a community of Christian scholars. Harding expects from its students a higher standard of conduct than the minimum required to avoid discipline. All acts of dishonesty in any academic work constitute academic misconduct. This includes, but is not necessarily limited to, the following:

1. *Cheating*: Use or attempted use of unauthorized materials, information or study aids in any academic exercise.
2. *Plagiarism*: Representing the words, ideas or data of another as your own in any academic exercise.
3. *Fabrication*: Falsification or unauthorized invention of any information or citation in an academic exercise.
4. *Aiding and Abetting Academic Dishonesty*: Intentionally helping or attempting to help another student commit an act of academic dishonesty.
5. *Conduct unbecoming a professional while participating in a practicum, internship, field experience, or any similar academic experience*: Conduct unbecoming a professional includes, but is not limited to, standards of conduct stated in the general Harding University catalog as well as standards and codes of conduct associated with professional organizations related to the student's academic discipline.
6. *Respect*: Students are expected to respect other classmate's opinions and ideas at all times. Since students cannot see body language and other non-verbal cues, it is essential that comments be worded carefully and refrain from such things as sarcasm, which can be taken negatively in the online world. Read posts for content and then read posts for context. If the message can be taken negatively in any way, the suggestion is to re-word the post until you are sure that it will not be taken defensively. Another key issue is to refrain from certain discussions that evoke strong reaction. This may include such things as:
  - Stereotypes of any nature, whether it be profession or class of people
  - Politics
7. *Lurking*: Lurking is when a student signs on and reads the messages and does not post to the classroom. There are many reasons why a student may do this. Some students may feel uncomfortable sharing views in an open forum, may be unsure of the materials being covered, and/or may not want to say the same or similar things that other students have already posted. Discuss these issues with your instructor. Posting 4 out of 7 days is essential to learning and to passing an online class. Lurking is not counted as participation and will only lower your grade. Your instructor may be able to assist you in overcoming or resolving any issue that may drive lurking behavior.
8. *Drifting*: Drifting occurs when the discussion goes in another direction than expected. Drifting is normal and encouraged in the online environment. However, the drifting must be related to academics and the materials discussed in the classroom. The instructor will encourage positive drifting, but will discourage inappropriate drifting and may ask students to take it to the CHAT room or to discuss it through personal email. Inappropriate drift will not be counted toward the participation grade.
9. *Misrepresenting Research Data*: The integrity of data in research is an important issue for advancing knowledge and the credibility of our professions. For this reason, any intentional misrepresentation of data, or misrepresentation of the circumstances of data collection, is considered a violation of academic integrity. Misrepresenting data is a clear violation of the rules of academic integrity and honesty.

## Accommodations/Students with Disabilities

It is the policy for Harding University to accommodate [students with disabilities](#), pursuant to federal and state law. Therefore, any student with a *documented disability* condition (e.g. physical, learning, or psychological) who needs to

arrange reasonable accommodations must contact the instructor and the Disabilities Office at the *beginning* of each semester. (If the diagnosis of the disability occurs during the academic year, the student must **self-identify** with the Disabilities Office *as soon as possible* in order to get academic accommodations in place for the remainder of the semester.) The Disabilities Office is located in Room 219 in the Student Center at the Searcy Campus.

MSIS courses are taught online and students will not have direct access to the Disability Services located on the Harding University Searcy Campus. The student must self-identify to the instructor of the course and submit documentation by fax or mail to Disability Services on Harding's main campus. The necessary forms are available online at [Disability Services](#). Upon receiving the appropriate documentation approved by ADA Guidelines, academic accommodations may be set up by the instructor via a teleconference with the Disabilities Director. If you have questions, please contact the Disabilities Director, at 501-279-4019.

### **Academic Grievance Policy**

If a student believes that he or she has reason to question the decision of a faculty member with regard to the final grade received in a course or the unreasonable denial of academic progression, a procedure has been established to resolve the grievance. The student must register his or her complaint in writing to the faculty member within seven business days following the alleged incident, except that if the grievance involves a final grade, it must be filed within ten business days after final grades are posted by the Registrar. Within the written complaint, the student must set forth reasons and grounds for the grievance. The policy set forth in the graduate catalog titled [Academic Grievance Procedure](#) establishes the procedures for such grievance resolution. All students should be familiar with this policy.

### **Time Management Expectations/Credit Hour Calculator Statement**

All courses at Harding meet federal and HLC regulations and meet or exceed university requirements regarding credit hours.

For every course credit hour, the typical student should expect to spend at least forty-five clock hours of concentrated attention on course-related work, including but not limited to time attending class, as well as out-of-class time spent reading, reviewing, organizing notes, preparing for upcoming quizzes/exams, problem solving, developing and completing projects, and other activities that enhance learning. Thus, for a three-hour course, a typical student should expect to spend at least one hundred thirty-five hours dedicated to the course.

### **Additional Academic Policies**

For additional academic policies like course load, changes in registration, incomplete, withdrawal, types of course offerings, please see the following [Academic Information](#).

In regard to the M.B.A. program, the last day to drop a class is Friday of week six. Students may add a class no later than Friday of week one of the class.

### **INSTITUTIONAL ACADEMIC SUPPORT SERVICES**

Harding offers a wide variety of academic support services. While this list is not all-inclusive, the following links may be useful to students (some services may not be applicable for graduate students):

- [Library](#)
- [Testing](#)
- [Tutoring](#)
- [Writing Lab](#)

### **INSTITUTIONAL STUDENT SUPPORT SERVICES**

Harding offers a wide variety of student support services. While this list is not all-inclusive, the following links may be useful to students (some services may not be applicable for graduate students):



- [Advising](#) (graduate MSIS students are advised by the MSIS office)
- [Registration](#)
- [Financial Aid](#)
- [Student Life](#)
- [Counseling](#)
- [Career Services](#) (MSIS students can also utilize the Center for Professional Excellence)
- [Seminars/Workshops](#)

## References

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