Instructor Information:

- Three (3) credit hours
- Classroom: Online
- Instructor: Patrick McKay, Ph.D.
- Email: Patrick.mckay@mso.umt.edu
  - *I can be reached via email for course or program inquiries. Allow for up to 24 hours for a response. Student email inquiries sent over the weekend will be addressed on Mondays.*
- Office Hours: Zoom Monday and Wednesdays from 3-4:00pm. To schedule a Zoom appointment email me and we will set up a time that works.
  - Make appointment 24 hours in advance.
  - If you would prefer to speak over the phone please email me your preference.

Required Course Text:

Required Access to Tableau Software:
Students receive one free year of Tableau by registering at the following link:
https://www.tableau.com/academic/students
- After clicking the link look for this button in the top right-hand corner →
- Fill out the required information and download the software to your computer.

Course Description
Data visualization is an often-overlooked topic in research that falls by the wayside after data collection methods and analysis. However, data visualization plays an important role in communicating the import findings in your research to the broader audience. This course fills this void by focusing solely on the process of visualizing data. Throughout this course, we focus on how to design visualizations that are appealing to your audience and how to develop these visualizations in Tableau. Tableau is a robust, increasingly popular, interactive data visualization software. Each week of this course we examine a new topic in data visualization, via textbook, lecture, and video followed by various hands-on tutorials and assignments in Tableau.

Objectives & Learning Goals
The overall objective of this course is to introduce you to the science and art of data visualization. Data literacy is imperative in our society. These skills are essential for objective analysis, communication, and play an important role in the much broader topic of critical thinking. The information gained will provide you with a foundation to understand and develop visualizations often found in our daily lives, in the news and other popular media (e.g., television and Internet).

Upon completion of the course, you will:
1. Have a working understanding of Tableau. We will not be able to cover everything that Tableau offers. However, you will have a solid base of knowledge from which to grow.
2. Beyond Tableau, this course will expose you to datasets, data figures (charts/graphs/maps), and design such as color and text.
3. The overall goal of this course is to provide you with the tools to visualize your data with confidence and thus communicate your data effectively to your audience.
Course Requirements

- **Live introduction and question and answer discussion on Zoom the first week of Class**
  - Thursday January 20th at 5:00PM MDT
  - Zoom Link: [https://umontana.zoom.us/j/97011452032](https://umontana.zoom.us/j/97011452032)
  - I will discuss the class, the syllabus, and ensure that all students are able to access Tableau, along with any other questions students may have.
  - This discussion will be scheduled for 1 hour.
  - Please email me in advance if you cannot make this time.

- **Text:**
  - Each section there is one or two chapters of the text to read. Assigned chapters are found on week-by-week schedule found at the back of this document. Assigned chapters are not in chronological order so make sure and check the assigned reading each week.

- **Lectures:**
  - Lectures will loosely cover the topics found in the assigned chapters each section. I recommend reading the chapter then watching the associated lectures. Lectures will discuss both the general topics of data visualization and Tableau.

- **Supplemental Video:**
  - Each section a video will be posted (Ted Talk or similar video) that covers the topic of the week. Learning from professionals in this field is one of the greatest ways to gain inspiration for your future visualizations.

- **Visual Analytic Discussions:**
  - Visual analytics covers the theory and best practice of data visualization. These discussions focus less on Tableau and more on what we need to keep in mind to improve our visualizations each time we create.

- **Unlocking the Tableau Tutorial:**
  - To unlock the Tableau tutorial(s) each section, students must first finish the assigned reading(s), lecture(s), and video(s). After completing these activities, a brief set of questions (5 to 10 questions) must be answered which will unlock the tutorial. These questions review the main topics covered in the sources mentioned above. Students must answer 80% of these questions correctly to unlock the Tableau tutorial. Questions are open note, open book, open video, and unlimited attempts are enabled. These questions are not intended to be challenging. The sole purpose of this is to ensure students go through the videos and readings and understand the main points discussed before moving onto the tutorial. Questions answered incorrectly do not impact your final grade.

- **Tableau Tutorial and Portfolio:**
  - **Tutorials:** Each section I will post a tutorial for Tableau. These tutorials cover a variety of topics and visualizations. I recommend following along in Tableau as you watch these tutorials. Based on my educational experience, I believe that one learns best by watching, doing, and writing it down. Each section, a set of visualizations (and/or Tableau capabilities) will be listed in Moodle, these visualizations will be covered in the Tableau tutorials (and often the text). Students are required to complete each of these visualizations in Tableau, create a very brief step-by-step, “how to” guide to create each visualization, and hand in the completed visualizations (copy and pasted into Word) and step-by-step guides each week. An example of the step-by-step write up will be posted in Moodle.
    - The grading rubric for these guides will be based on the following: (10 points total each write-up)
      - Section tutorial write-ups are due by midnight of the Saturday following the last day of the section. For example, Section 1 goes to Friday the 28th so the write-up
is due at 11:59PM on Saturday the 29th.

- All visualizations for the week are shown on the handed in write-up and appear similar to what was covered (5 pts possible)
- All visualizations are accompanied by a step-by-step write up of how it was created (5 pts)
- The level of detail included in write-up is up to the student. I will not grade on the amount of detail included but whether the steps get you to the final visualization.
- I will provide the data for these tutorials but am not against you using your own data.

- **Portfolio:** The end of the semester portfolio will be a Tableau training manual that you created. This is simply the compilation of all step-by-step tutorials and participation assignments together in one document that can be referred to in the future when working with Tableau on your own. Portfolios are worth 25 points. Students gain all 25 points by including all tutorial write-ups (handed in over the weeks) and assignments together in one Word or PDF file. An index, overview page and a lesson learned page will be included that will link all tutorials together in one document. Overview and lessons learned are to be no longer than one page each. If a student lost points on one or more of the week’s tutorial write-ups, these tutorials must be corrected to gain all 25 points. Portfolios are due by midnight Friday May 13th.

- **Participation Assignments: (5 points each)**
  - Over the course of the class, there will be four times when your participation is required. These participation assignments will largely be tutorials that we covered during the week but will ask students to use some creativity to demonstrate different options in Tableau or related topic of the week.
  - Participation assignments must be posted the following Saturday by midnight.
  - Students will post completed participation assignments on Moodle. Each participation assignment will have different discussion topics to talk about as a group.
    *Example: one week, each student will be assigned a specific color palette that must be utilized to visualize their data. Students will post their final product on Moodle and after examining all different color options discuss which colors together work to create the perfect visualization.

- **Visual Analytics Assignment (20 points)**
  - This assignment will ask you to take what you have learned from the six sections of visual analytics and apply it to your own data (any data). The assignment directions will be posted the first week of section 6 and will be due by the end of section 6 (by May 6th).

- **Final Week Discussion Presentation: (25 points)**
  - The final week discussion presentation will be a live discussion hosted on Zoom on Wednesday May 11th at 5:00PM MDT. This will be approximately 90 minutes. This is your chance to share something about data visualization that resonated with you.
  - Zoom Link: [https://umontana.zoom.us/j/95563515038](https://umontana.zoom.us/j/95563515038)
  - During this discussion, each student will have a few minutes (2 to 3 minutes) to present one of the following to their classmates:
    - Favorite visualization that you created throughout the class
    - Visualizations you created with your own data or data you found outside of class.
    - Something you learned inside or outside of class about Tableau or data visualization that could be of interest to the class. For example:
      - Tutorial on a visualization not covered in class
• Website, video, or other content that could be particularly helpful for your future visualizations.
  ▪ Other presentation ideas are allowed
    o Grading rubric will be provided to you on Moodle.

Grades:
1) Tableau Tutorials: 60 points (40% of total)
2) Final Portfolio: 25 points (17% of total)
3) Participation Assignments: 20 points (13% of total)
4) Visual Analytics Assignment: 20 points (13% of total)
5) Final Week Discussion: 25 points (17% of total)
Total: 150 points

Final grades will be determined based on your average score out of the total points possible. Grades will be assigned according to the scale below:

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Grade Percent</th>
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<tbody>
<tr>
<td>A</td>
<td>90-100 percent</td>
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<tr>
<td>B</td>
<td>80-89 percent</td>
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<tr>
<td>C</td>
<td>70-79 percent</td>
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<tr>
<td>D</td>
<td>60-69 percent</td>
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<tr>
<td>F</td>
<td>59 percent or below</td>
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Class Policies:
MPA Portfolio
If you are using any of the class assignments for your final MPA portfolio, it is your responsibility to keep track of individual grades and professor feedback. Use your computer’s “snipping tool” to capture graded feedback and save with
your files. MPA Portfolio requirements can be found using this link.

Late work: I will not accept late work. Exceptions will be made only for university sanctioned excuses (i.e. documented medical or family problems; university approved absences for athletic participation, field trips, etc.). Reasonable accommodations will be made for students who have a documented disability. Please notify me during the first week of class of any accommodations that are needed for the course. Late notification may result in the requested accommodations not being available. All accommodations must be approved through Disability Services for Students (DSS) in Lommasson Center 154 (243-2243).

**Academic Honesty and Integrity (UM official statement):**
All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the university. All students must be familiar with the Student Conduct Code. The code is available for review online at [http://www.umt.edu/SA/VPSA/index.cfm/page/1321](http://www.umt.edu/SA/VPSA/index.cfm/page/1321).

- **Cultural Leave Policy:** UM has a Cultural and Ceremonial Leave Policy: “Cultural or ceremonial leave allows excused absences for cultural, religious, and ceremonial purposes to meet the student’s customs and traditions or to participate in related activities. To receive an authorized absence for a cultural, religious or ceremonial event the student or their advisor (proxy) must submit a formal written request to the instructor. This must include a brief description (with inclusive dates) of the cultural event or ceremony and the importance of the student’s attendance or participation. Authorization for the absence is subject to approval by the instructor. Appeals may be made to the Chair, Dean or Provost. The excused absence or leave may not exceed five academic calendar days (not including weekends or holidays). Students remain responsible for completion or make-up of assignments as defined in the syllabus, at the discretion of the instructor.”

- **Academic Dishonesty (Plagiarism):** Students must follow the University’s policies for academic dishonesty. For detailed information, please view. As such, all work submitted must be your own; no duplicate work (work completed for another class) will not be accepted. Acts of cheating or plagiarism will result in a grade of zero (0) for the assignment. Moreover, acts of plagiarism will also be reported to the Academic Court. To avoid acts of plagiarism, cite each reference or source you use and give proper credit for the ideas, opinions, and findings of others. When you are using the exact words of others, you must use quotation marks and include the page number where you found the quote in your citation.

- **Collective Learning Agreement:** In our time together this semester we acknowledge that we are in the aboriginal territories of the Salish and Kalispel people. We honor the path they have always shown us in caring for this place for generations to come. We thank the Sélíš-Qlispé Cultural Council for the above language and the people of Turtle Island, the First People, for the privilege of learning in this space. All people have the right to be addressed and referred to in accordance with their personal identity. In this class, you will have the opportunity to indicate the name you prefer to be called, and if you choose, to identify pronouns with which you would like to be addressed. As your professor, I will do my best to address and refer to all students accordingly and support students in doing so as well.

- **Using Moodle:** This is a fully online class; students are required to use Moodle and should check daily. Here is the link for Moodle access [https://login.umt.edu/idp/profile/cas/login?execution=e1s1](https://login.umt.edu/idp/profile/cas/login?execution=e1s1). Use your Net ID to log on. Content for each week will be posted by Noon each Sunday.

- **Help with Technology:** Please make sure your Internet browser settings meet the requirements to be Moodle compatible. Call UM Online by phone, (406) 243-4999 or email umonline-help@umontana.edu if technological problems arise, M-F. There is no on-call assistance during nights and weekends. For a total Moodle system failure, students will be sent an email by the University of Montana.

- **UM Email**
  - Students are expected to use their umontana student email address for all communication and check regularly. Here is a link for an overview.