MKT566: Decision Making using Marketing Analytics
Fall 2025

Instructor: Davide Proserpio
Class time: 12:30 – 13:50 pm (16546), 2:00 – 3:20 pm (16547)
Classroom: JKP 104
Office: HOH332
Office Hours: Mondays, 4 – 6 pm or by appointment
Email: proserpi@marshall.usc.edu
Class website: https://github.com/dadepro/mkt566/

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Course Description

This course is designed to equip you with the skills necessary to effectively utilize marketing data and reports, enabling you to make informed and critical decisions based on that data. The instructor will guide students on a journey of data exploration, beginning with data collection, visualization, and analysis, and concluding with the application of new methods (such as machine learning) and the utilization of diverse data types (including unstructured big data, such as text data) to address various marketing challenges faced by firms.

Learning Objectives

From a practical perspective, this course aims to provide students with the background needed to begin working in a marketing analytics, business analytics, or product manager position within a corporation, a consulting firm, or a marketing research firm. The course employs a combination of lectures, cases, and exercises. The course takes a hands-on approach, utilizing real-world data to equip students with tools that can be applied immediately on the job.

Specifically, the objectives for this course are to:

1. Familiarize students with data-driven marketing strategies and to help them understand the process of converting data into marketing decisions. After taking this class, the student will feel comfortable making data-driven marketing decisions independently as well as in a group setting.
2. Provide a working knowledge of data handling and modeling techniques using widely used open source software. All these techniques are tools of a modern marketer. As a result, the student will gain competency to utilize the commonly used tools for their marketing-related data analysis needs.
3. Present applications of the techniques used for consumer segmentation, targeting customers, pricing, digital advertising, and data visualization. The student will be able to carry out these techniques independently after practicing on several full-length problems.

4. Provide students with an opportunity, through the final course project, to work on a marketing analytics project as a team. Students will grasp the fundamentals of tackling a marketing analytics project from scratch to finish.
5. Gain a working knowledge of consumer segmentation models, predictive modeling, and an acquaintance with unstructured data analysis using machine learning, and the use of big data in marketing analytics. All these are integral components of modern marketing analytics. Students will be able to leverage these invaluable skills to enhance their marketability as a marketing/business analyst, as well as their competency in interacting with and managing a marketing/business analytics team.

I believe that enjoyable learning is the most effective way to learn. I will work to stimulate your interest and learning, but you are expected to display initiative and a program of self-study. In that sense, a complementary objective of this course is to provide you with an environment that will encourage and reward your own intellectual effort, while simultaneously maintaining rigorous standards that identify those who are motivated to pursue excellence in their own educational preparation for a successful career.

Course materials

Teaching materials:

- Slides and course notes
- Readings links (open source) will be provided for each topic
- Open-source materials:
    - R for Marketing Students (similar content to R for Marketing Analytics)
    - Data Storytelling for Marketers
    - Data Visualization: A practical introduction
    - R for data science
    - Introduction to R for data science
    - Text mining with R
    - Text analysis with R
    - R markdown
- Not open source (optional):
    - R for Marketing Analytics (slides/exercises/code are open source)
    - Python for Marketing Analytics

Software: we will rely on open-source software (R, Python)
Recommended IDE: RStudio/VSCode

Preparing for Class: It is required that you set up all necessary software before class, as instructed by the instructor. Oftentimes, we will use laptops for in-class exercises. Please make sure that you bring a fully charged laptop to every class.

Grading

Assignments	Points	% of Overall Grade
Class Participation	10	10%
Individual homeworks (4)	60	60%
Team Project	30	30%
TOTAL	100	100%

Your final course grade represents how you perform in the class relative to other students. Your grade will not be based on a mandated target, but on your performance. Historically, the average grade for a graduate elective class at USC Marshall is about a B+. Three items are considered

when assigning final grades:

1. Your weighted score as a percentage of the three components listed above.
2. The overall average score within the class.
3. Your ranking among all students in the class.

More details of my grading policy are provided below:

1. **Individual Assignments (4 required, 15% each):** Students need to develop their own competence in dealing with the subject matter of this course. To accomplish this goal, students will be asked to complete 4 assignments covering the material discussed in the course. To complete each assignment, students must carry out data analyses, interpret the results, and derive insights. Each assignment is worth 15% of your course grade. The instructor will post assignments on the course website, along with detailed instructions. The due dates of these assignments are provided in the syllabus. Each individual assignment is due at midnight of the scheduled due date.
   A late submission will result in an immediate loss of 10% of the assignment grade, plus an additional 5% for each late day, irrespective of the excuse. Individual assignments that are sufficiently late so as to have benefited from class discussion get no credit. Additionally, while interpersonal discussions are okay, it is essential that students complete these assignments independently. If the instructor detects any plagiarizing behavior (even for only part of the assignment), the student will receive a severe penalty on his/her course grade.
   For each assignment, you will submit a R (Markdown/Quarto)/Python notebook (converted to HTML or PDF) with code properly commented, outputs (e.g., figures, tables), and the answer to the assignment questions.
   To foster transparency, I also require each student to submit a log file of the LLM prompts used (if any) to help solve the assignments. More specifically, each student should include a paragraph in the homework file that explains what they used or did not use, i.e., "I used Copilot and ChatGPT" or "I did not use any AI tool". In addition, each student needs to submit an "AI log file" (URL link to the conversation, Word document, or a simple text file) containing the conversation had with AI, including your prompts and answers. Failure to submit this log file will result in a 20% loss of the assignment grade. In addition, simply copying and pasting LLM outputs will invalidate the answer provided and potentially lead to a breach of academic integrity (as discussed in more detail below).

2. **Group Project (30%):** The objective of the group project is to provide you with an opportunity to apply what you learn to a real marketing problem of interest. To ensure you are on track, I would like each group to submit and present (approximately 10-15 minutes) a PowerPoint presentation proposal outlining the problem you propose to study and your general approach to the problem on October 13 and 15. As the final deliverable of the group project, each group will (1) submit and present a PowerPoint presentation (approximately 15 minutes) on December 1 and 3, and (2) an R (Markdown/Quarto)/Python notebook with data cleaning and analysis properly commented. More details about the group project are given in Appendix C.

3. **Class Participation (10%):** This course is intended to be an active learning experience. Your learning is greatly enhanced by actively participating in each lecture. The grading of class participation will be determined by the quality and quantity of your participation during each lecture.

   I will record attendance at the beginning of most classes. I realize that occasionally it is not possible to attend class. It is your responsibility to get all the notes and handouts for the class you missed. You can miss up to two class sessions without it affecting your class participation grade. However, if you miss more than two sessions, your class participation grade will be negatively affected.

Course norms

Certain rules will help ensure that we all have a good experience in the classroom.

- Don't be late or leave early; otherwise, we will all feel like we are at the airport, which is not a conducive place for learning.
- When you come to class, be prepared to participate actively. This is not the place to sleep, chat with your friends, read the newspaper, text messaging, etc. There are more comfortable places for those activities than this classroom.
- No cell phones, iPads, or other electronic devices in the classroom.

Violation of course conduct will considerably affect your class participation grade.

Academic Integrity

The University of Southern California is foremost a learning community committed to fostering successful scholars and researchers dedicated to the pursuit of knowledge and the transmission of ideas. Academic misconduct is contrary to this fundamental mission and includes any act of dishonesty in the submission of academic work (either in draft or final form), as well as cheating, plagiarism, fabrication (e.g., falsifying data), knowingly assisting others in acts of academic dishonesty, and any act that gains or is intended to gain an unfair academic advantage. Students are expected to uphold the highest standards of academic integrity in all coursework.

This course follows the expectations for academic integrity as stated in the USC Student Handbook. All students are expected to submit assignments that are original work and prepared specifically for the course/section in this academic term. Students may not submit work written by others or "recycle" work prepared for other courses without obtaining written permission from the instructor(s). Students suspected of academic misconduct will be reported to the Office of Academic Integrity.

Academic dishonesty has a far-reaching impact and is considered a serious offense against the university. Violations will result in a grade penalty, such as a failing grade on the assignment or in the course, and disciplinary action from the university, such as suspension or expulsion.

For more information about academic integrity, see the Student Handbook, the Office of Academic Integrity's website, and university policies on Research and Scholarship Misconduct.

Please ask your instructor if you are unsure what constitutes unauthorized assistance on an exam or assignment or what information requires citation and/or attribution.

Use of AI generators

I expect you to use AI (e.g., ChatGPT, Gemini) in this class. Learning to use AI is an emerging skill, and I welcome the opportunity to meet with you to provide guidance with these tools during office hours or after class. Keep in mind the following:

- AI tools are permitted to help you brainstorm topics or revise work you have already written.
- If you provide minimum-effort prompts, you will get low-quality results. You will need to refine your prompts to get good outcomes. This will take work.
- Proceed with caution when using AI tools and do not assume the information provided is accurate or trustworthy. If it gives you a number or fact, assume it is incorrect unless you either know the correct answer or can verify its accuracy with another source. You will be responsible for any errors or omissions that the tool provides. AI works best for topics you understand.

AI is a tool, but one that you need to acknowledge as being used. **Please include a paragraph at the end of any assignment that uses AI explaining how (and why) you used AI**, **and indicate/specify the prompts you used to obtain the results and what prompts you used to get the results**. Failure to do so is a violation of academic integrity policies.

Be thoughtful about when AI is useful. Consider its appropriateness for each assignment or circumstance. The use of AI tools requires attribution. You are expected to clearly attribute any material generated by the tool used.

Please ask me if you are unsure about what constitutes unauthorized assistance on an exam or assignment, or what information requires citation and/or attribution.

In addition, keep in mind that:

- In this class, you are expected to submit work that demonstrates **your individual mastery** of the course concepts, so while the use of AI is allowed, you are ultimately responsible for learning and mastering the concepts taught in class.
- Plagiarism includes the submission of code written by, or otherwise obtained from, someone else, including AI.

If found responsible for an academic violation, students may be assigned university outcomes, such as suspension or expulsion from the university, and grade penalties, such as an "F" grade on the assignment, exam, and/or in the course.

Feedback to the Instructor

At the Marshall School of Business, we are committed to continuous improvement in the quality of teaching and learning. Please feel free to speak with me at any time regarding any aspect of this course, including aspects that you think are going well or areas that need improvement. During the semester, I will also provide you with opportunities to submit anonymous written feedback to me. These will help me gauge how the course is progressing and make it a worthwhile experience for you.

Course schedule

A tentative schedule is presented below. The class schedule, contents, and assignment due dates are subject to revision at the instructor's discretion.

	Topics/Daily Activities	Readings	Deliverables with Due Dates
Week 1 Aug 25,27	- Course intro - Data viz	Required: - Chapter 3 of R for Data Science - The Groupon Effect on Yelp Ratings: A Root Cause Analysis Optional: - Chapter 1 of Data Visualization: A practical introduction - Lecture 5 of Data Storytelling for Marketers	Homework 1: Data Viz (release date Aug. 27)
Week 2 Sept 1,3	- Sept 1 is Labor Day (no class) - Exploratory data analysis: Variation	Required: - Chapter 7 of R for Data Science Optional: - Chapter 3, 4, 5 of R for Marketing Analytics	
Week 3 Sept 8, 10	- Exploratory data analysis: Covariation - Exploratory data analysis: In-class exercise (RateBeer)	Required: - Chapter 7 of R for Data Science Optional: - Chapter 3, 4, 5 of R for Marketing Analytics	Homework 1 due on Sept. 14
Week 4 Sept 15,17	- Modeling relations between variables: OLS & Logit - Modeling relations between variables: In class exercise (Airbnb)	Required: - Chapters 3.4 and 3.6 of R for Marketing Students Optional: - Lecture 6 of Data Storytelling for Marketers - Chapters 7, 9.2 of R for Marketing Analytics	Homework 2: Exploratory data analysis: regressions (release date: Sept 17) Sept 15: Deadline for forming and being part of a group (if you are still without a group, your project score will be penalized by 10%)
Week 5 Sept 22,24	- Clustering - Recommendations/personalization	Required: - PCA: Chapters 5 and 6 of R for Marketing Students - Clustering: Chapter 7 of R for Marketing Students - Recs.:Marketing	

		Automation: Recommendation Systems Optional: - Clustering: Chapter 11.1–11.3 of R for Marketing Analytics - Recs.: Two Decades of Recommender Systems at Amazon.com	
Week 6 Sept 29, Oct 1	- Guest speaker: Jonathan Elliott (Sept. 29) - Clustering/recs.: in class exercise		
Week 7 Oct 6, 8	- Work on group project - Fall Recess, no class		Homework 2 due on Oct. 8 Homework 3: Clustering/Recommendations (release date Oct. 8)
Week 8 Oct 13, 15	- Mid-term project presentations (both Mon and Wed)		Project proposal presentation due on October 12
Week 9 Oct 20, 22	- Classifiers - Classifiers	Optional: - Classifiers: Chapter 11.4–11.6 of R for Marketing Analytics	
Week 10 Oct 27, 29	- User-generated content, text analysis, and sentiment prediction - User-generated content, text analysis, and sentiment prediction	Required: - Chapter 8 of Introduction to R for Data Science - Text analysis in R: Word embeddings - GLMNET R package - Reputation Systems - HBR: How fake Customer Reviews do–and don't–work - Detecting Fake Review Buyers Using Network Structure: Direct Evidence from Amazon Optional: - Fake It Till You Make It: Reputation, Competition, and Yelp Review Fraud - Using Traditional Text Analysis and Large Language Models in Service Failure and Recovery	Homework 3 due on Oct. 29 Homework 4: Predictions (release date: Oct. 29)
Week 11 Nov 3, 5	- Causality: Randomized experiments and ad measurements - Guest speaker: Yang Wang (Nov. 5)	Required: - Measuring advertising incrementality using Ghost Ads	

		- What is the difference between attribution vs. incrementality? Optional: - Retail Media ROAS Demystified	
Week 12 Nov 10, 12	- Causality: Observational data - Causality: Observational data	Required: - HBR: Research: Products Labeled as Sustainable Sell Better - The impact of sustainability programs on consumer purchase behavior: Evidence from Amazon	Homework 4 due on Nov. 19
Week 13 Nov 17, 19	- New topics: LLM and more - Guest speaker: Giovanni Marano (Nov. 19)	Required: - Study: Generative AI results depend on user prompts as much as models - HBR: Forget What You Know About Search. Optimize Your Brand for LLMs	
Week 14 Nov 24, 26	- Thanksgiving, no class		
Week 15 Dec 1, 3	- Group project presentations (both Mon and Wed)		- Final presentation due Nov. 30 - Final project doc due Dec. 3
FINAL Friday Dec. 12	Section 16546: 11 am – 1 PM Section 16547: 2 pm – 4 pm		Peer evals due on Dec. 12 in class

APPENDIX

Appendix A. Marshall graduate programs learning goals

How MKT 566 Contributes to Marshall Graduate Program Learning Goals

Marshall Graduate Program Learning Goals	MKT 566 Objectives that support this goal	Assessment Method*
Learning Goal #1: Develop Personal Strengths. Our graduates will develop a global and entrepreneurial mindset, lead with integrity, purpose and ethical perspective, and draw value from diversity and inclusion.		
1.1 Possess personal integrity and a commitment to an organization's purpose and core values.		
1.2 Expand awareness with a global and entrepreneurial mindset, drawing value from diversity and inclusion.		
1.3 Exhibit awareness of ethical dimensions and professional standards in decision making.		
Learning Goal #2: Gain Knowledge and Skills. Our graduates will develop a deep understanding of the key functions of business enterprises and will be able to identify and take advantage of opportunities in a complex, uncertain and dynamic business environment using critical and analytical thinking skills.		
2.1 Gain knowledge of the key functions of business enterprises.	1 & 5	Assignments
2.2 Acquire advanced skills to understand and analyze significant business opportunities, which can be complex, uncertain and dynamic.	2 & 3 & 4	Assignments & Group Project
2.3 Use critical and analytical thinking to identify viable options that can create short-term and long-term value for organizations and their stakeholders.	1 & 2 & 3 & 4 & 5	Assignments & Group Project
Learning Goal #3: Motivate and Build High Performing Teams. Our graduates will achieve results by fostering collaboration, communication and adaptability on individual, team, and organization levels.		
3.1 Motivate and work with colleagues, partners, and other stakeholders to achieve organizational purposes.	4	Group project
3.2 Help build and sustain high-performing teams by infusing teams with a variety of perspectives, talents, and skills and aligning individual success with team success and with overall organizational success.	4	Group project
3.3 Foster collaboration, communication and adaptability in helping organizations excel in a changing business landscape.	4	Group project

Appendix B: Marshall guidelines

Add/Drop Process

In compliance with USC and Marshall's policies classes are open enrollment (R-clearance) through the first week of class. All classes are closed (switched to D-clearance) at the end of the first week. This policy minimizes the complexity of the registration process for students by standardizing across classes. I can drop you from my class if you don't attend the first two sessions. Please note: If you decide to drop, or if you choose not to attend the first two sessions and are dropped, you risk being not being able to add to another section this semester, since they might reach capacity. You can only add a class after the first week of classes if you receive approval from the instructor. Further, if you are absent from the first three weeks of classes, I will ask you to withdraw by Sep. 8. These policies maintain professionalism and ensure a system that is fair to all students.

Emergency Preparedness/Course Continuity

In case of a declared emergency if travel to campus is not feasible, the USC Emergency Information web site (https://emergency.usc.edu/) will provide safety and other information, including electronic means by which instructors will conduct class using a combination of USC's Blackboard learning management system (blackboard.usc.edu), teleconferencing, and other technologies.

Open Expression and Respect for All

An important goal of the educational experience at USC Marshall is to be exposed to and discuss diverse, thought-provoking, and sometimes controversial ideas that challenge one's beliefs. In this course we will support the values articulated in the USC Marshall "Open Expression Statement" (https://www.marshall.usc.edu/about/open-expression-statement).

Statement on University Academic and Support Systems

Students and Disability Accommodations:

USC welcomes students with disabilities into all of the University's educational programs. The Office of Student Accessibility Services (OSAS) is responsible for the determination of appropriate accommodations for students who encounter disability-related barriers. Once a student has completed the OSAS process (registration, initial appointment, and submitted documentation) and accommodations are determined to be reasonable and appropriate, a Letter of Accommodation (LOA) will be available to generate for each course. The LOA must be given to each course instructor by the student and followed up with a discussion. This should be done as early in the semester as possible as accommodations are not retroactive. More information can be found at osas.usc.edu. You may contact OSAS at (213) 740-0776 or via email at osasfrontdesk@usc.edu.

Student Financial Aid and Satisfactory Academic Progress:

To be eligible for certain kinds of financial aid, students are required to maintain Satisfactory Academic Progress (SAP) toward their degree objectives. Visit the Financial Aid Office webpage for undergraduate- and graduate-level SAP eligibility requirements and the appeals process.

Support Systems:

Counseling and Mental Health - (213) 740-9355 – 24/7 on call

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

988 Suicide and Crisis Lifeline - 988 for both calls and text messages – 24/7 on call

The 988 Suicide and Crisis Lifeline (formerly known as the National Suicide Prevention Lifeline) provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a

week, across the United States. The Lifeline consists of a national network of over 200 local crisis centers, combining custom local care and resources with national standards and best practices. The new, shorter phone number makes it easier for people to remember and access mental health crisis services (though the previous 1 (800) 273-8255 number will continue to function indefinitely) and represents a continued commitment to those in crisis.

CARE-SC: Confidential Advocacy, Resources, and Education Support Center - (213) 740-9355(WELL) – 24/7/365 on call.
Confidential advocates, prevention educators, and professional counseling teams work to promote a universal culture of consent, and prevent and respond to gender- and power-based harm. Services available to all USC students at no cost.

Office of Civil Rights Compliance - (213) 740-5086
Information about how to get help or help someone affected by harassment, discrimination, retaliation on the basis of a protected characteristic, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

Reporting Incidents of Bias or Harassment - (213) 740-2500
Avenue to report incidents of bias, hate crimes, and microaggressions to the Office for Equity, Equal Opportunity, and Title for appropriate investigation, supportive measures, and response.

The Office of Student Accessibility Services (OSAS) - (213) 740-0776
OSAS ensures equal access for students with disabilities through providing academic accommodations and auxiliary aids in accordance with federal laws and university policy.

USC Campus Support and Intervention - (213) 740-0411
Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

USC Emergency Information
Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

USC Department of Public Safety
For 24 hour emergency assistance or to report a crime: UPC: (213) 740-4321, HSC: (323)-442-1000.
For 24 hour non-emergency assistance or information: UPC: (213) 740-6000, HSC: 323-442-1200.

Office of the Ombuds - (213) 821-9556 (UPC) / (323-442-0382 (HSC)
A safe and confidential place to share your USC-related issues with a University Ombuds who will work with you to explore options or paths to manage your concern.

Occupational Therapy Faculty Practice - (323) 442-2850 or otfp@med.usc.edu
Confidential Lifestyle Redesign services for USC students to support health promoting habits and routines that enhance quality of life and academic performance.

Appendix C: Group project

Students should form groups and have the names of the group members submitted to me by the end of the class on September 15. Each group should include about 5-6 students. The instructor will provide some guidance on the ideal formation of the student groups.

At some point in your career, you will be asked to evaluate the work of others. So, as part of the team assignment experience, you will be required to submit a peer evaluation form (Appendix D of this syllabus) for your team assignment. Failure to make equitable contributions to group work will be penalized with a lower individual grade.

The objective of the group project is to provide you with an opportunity to apply what you have learned to a real-world marketing problem of interest. As a first step, you have to select a project of interest for your group. It would be useful if the project involved a real problem facing a specific company, but this is not absolutely necessary. The project should be related to material covered in the course and employ at least one technique covered in the course. Its scope should be limited enough that it can be completed by the end of the semester.

Interim Deliverables

To make sure that you are on track, I would like each group to submit and present a PowerPoint project proposal/mid-term check on October 13 or October 15. A general format of the proposal is as follows:

- An outline of the problem that you propose to study
- Data to be employed, and how you plan to obtain the data
- Proposed approaches to solve the problem

The presentation should be 10-15 minutes long and outline the three bullet points above.
It is expected that this will be a rough plan of action and that the class and I will have suggestions for how to proceed. The objectives of this exercise are to make sure that each project is feasible, for me to provide feedback, and for the class to get a feel for the range of projects being proposed.

Final Deliverables

On December 1 and 3, each student group will make a 15-minute final presentation to the entire class, followed by 5 minutes for Q&A. The 15-minute limit of your presentation is a strict limit. Please rehearse your presentation a few times to make sure that you can complete your talk within this time limit. Your order of presentation will be determined randomly. The dress code for the group presentation is business casual.

The presentation should include:

- A statement of the problem
- A brief description of the data, model(s), and analyses
- A brief summary of the results
- Recommendations and implications of the results/findings.

In addition to your slides, it is required that you submit a R (Markdown/Quarto)/Python notebook (converted to HTML or PDF) with data cleaning and analysis properly commented, including an explanation of what each analysis does and the interpretation of the output. Such supplementary material will provide helpful information for me to judge the quality of your work.

Grading

Each one of the three parts of the group project (interim presentation, final presentation, and document) will contribute to the final group project grade. Your group project is worth a total of 100 points, split across the interim presentation (15%), the final presentation (45%), and the document discussing the data analysis (40%). (Note that for simplicity, every part is graded on the same [0,100] scale and weighted appropriately to compute the final project score.) I will evaluate you based on the following criteria:

Interim presentation (15%)

1. Clarity of problem definition
    a. Clear articulation of the problem or opportunity, grounded in marketing relevance.

Needs improvement (10 points)	Pass (14 points)	OK (16 points)	Good (18 points)	Excellent (25 points)

2. Description of the data
    a. Data sources have been identified, and the data is feasible to collect.

Needs improvement (10 points)	Pass (14 points)	OK (16 points)	Good (18 points)	Excellent (25 points)

3. Description of the methodology
    a. The approach discussed is adequate

Needs improvement (10 points)	Pass (14 points)	OK (16 points)	Good (18 points)	Excellent (25 points)

4. Clarity of presentation
    a. Slides are clear, timing is respected, presenters are engaged and they are open to feedback.

Needs improvement (10 points)	Pass (14 points)	OK (16 points)	Good (18 points)	Excellent (25 points)

Presentation (45%)

1. Completeness and coherence
    a. Answered all questions provided by the instructor
    b. Information is very organized; the chain of thought is easy to follow

Needs improvement (10 points)	Pass (14 points)	OK (16 points)	Good (18 points)	Excellent (20 points)

2. Quality of research
    a. Conducted your research thoroughly
    b. Collected relevant evidence to support your propositions

Needs improvement (10 points)	Pass (14 points)	OK (16 points)	Good (18 points)	Excellent (20 points)

3. Quality of discussions and/or recommendations
    a. Demonstrated a clear and logical relationship between your research and your conclusions
    b. In-depth thinking was evident with specific recommendations

Needs improvement (10 points)	Pass (14 points)	OK (16 points)	Good (18 points)	Excellent (20 points)

4. Preparedness & Props
    a. Students are completely prepared and have obviously rehearsed.
    b. Students use several props (such as charts, figures, tables, video/audio representations) that show considerable work/creativity and make the presentation excellent.

Needs improvement (10 points)	Pass (14 points)	OK (16 points)	Good (18 points)	Excellent (20 points)

5. Posture, Volume, and Eye Contact
    a. Students look relaxed and confident; volume is loud enough to be heard by all audience members throughout the presentation.
    b. Not reading from the slides or note cards; establish eye contact with everyone in the room

Needs improvement (10 points)	Pass (14 points)	OK (16 points)	Good (18 points)	Excellent (20 points)

Data cleaning and analysis doc (40%)

1. Completeness & organization (20 points)
    a. Data cleaning and all analyses are included

Needs improvement (10 points)	Pass (14 points)	OK (16 points)	Good (18 points)	Excellent (20 points)

2. Quality of research & data handling (20 points)
    a. Thorough data cleaning
    b. Thoughtful variable construction
    c. Justified use of methods.

Needs improvement (10 points)	Pass (14 points)	OK (16 points)	Good (18 points)	Excellent (20 points)

3. Analytical rigor (20 points)
    a. Correct application of methods/models
    b. Clear interpretation of the outputs.

Needs improvement (10 points)	Pass (14 points)	OK (16 points)	Good (18 points)	Excellent (20 points)

4. Discussion & recommendations (20 points)
    a. Strong connection between analysis and recommendations
    b. Limitations acknowledged.

Needs improvement (10 points)	Pass (14 points)	OK (16 points)	Good (18 points)	Excellent (20 points)

5. Reproducibility & clarity of code (20 points)

a. Code is clean, commented, and reproducible
b. The notebook is easy to follow.

Needs improvement (10 points)	Pass (14 points)	OK (16 points)	Good (18 points)	Excellent (20 points)

Appendix D: Peer evaluation form

Grades for individual student contributions to team projects are assigned by me, based on my observations of the team's working dynamics, my assessment of the team's project quality, and thoughtful consideration of the information provided through your peer evaluations. To help me with evaluation, please submit the following form rating the contribution of each teammate, including yourself, on a scale from 1 to 10

Your name

_____

Use this form to evaluate yourself and your team members on the listed criteria:

1. Attended all meetings - was there on time and ready to work for every meeting.
2. Completed all tasks - tasks were finished when promised and were done well.
3. Contributed to group effort - volunteered for work, assisted teammates when needed, and did their fair share.
4. Contributed to group process - helped keep meetings on track, did not stray from subject, and settled conflicts.

Team member	**Points**
Yourself	

Specific comments about the group effort on the project: