

Each student will complete a Culminating Project in which each student will carry out a statistical study on a topic or issue of significance that requires the integration and application of the expectations of this course. You will pose a problem whose solution would require the organization and analysis of a large amount of data. You will use the tools of the course to design and carry out a study of the problem. You will compile a fully-justified (typed) report of the investigation and its findings. The project will be summarized and presented, using appropriate presentation technology. The project will be worth **15% of your final mark (12% for the written research paper and 3% oral presentation)**.

The following are your time-lines:

Date	Description	Marks
Tuesday, November 5	1) Select a major topic. 2) Do an extended mind map and mind web. 3) Generate 3 questions you might investigate for this project. Rank them in order of priority. **See section 9.1 as a reference.	T: 10
Monday, November 11	After consulting with your teacher, decide on your topic question.	
Monday, November 18	Submit 3 possible hypotheses for your topic question. Rank them in order of priority. **See section 9.2 as a reference.	T: 10
Friday, November 22	After consulting with your teacher, decide on your hypothesis for your topic question. Begin research.	
Monday, December 2	Submit a full time-line plus a detailed action plan for steps 1,2,3,4 in section 9.3.	A: 10
Monday, December 9	After consultation with your teacher, continue implementing your action plan: 1) Research and collect large amounts of data. 2) Organize your data appropriately. 3) Present the data in appropriate graphs, charts, etc. 4) Use the data analysis tools from this course to analyze the data. 5) Make a conclusion supporting or refuting your hypothesis based on the evidence provided by your data analysis. 6) Evaluate your investigation. **See section 9.4 as a reference	A: 10 (Draft)
Monday, January 13 Wednesday, January 15 (Presentation: January 15, 16, 17)	1) Submit a written report of your findings. 2) Make a class presentation using appropriate presentation technology. **See section 9.5 as a reference	See Rubric

MDM4U Culminating Project Rubric

Problem Solving (T)				
	Level 1	Level 2	Level 3	Level 4
Applying mathematical processes and procedures correctly to investigate the area of study	Correctly applies some of the mathematical processes and procedures with major errors	Correctly applies many of the mathematical processes and procedures with some errors	Correctly applies the mathematical processes and procedures with minor errors	Correctly applies the mathematical processes and procedures with precision and accuracy
Selecting Tools and Computational Strategies (T)				
Selecting and using tools and strategies to organize and analyze the data used in the investigation	Selects and applies tools and strategies for one variable and two variable analysis with major errors or omissions	Selects and applies tools and strategies for one variable and two variable analysis with minor errors or omissions	Selects and applies tools and strategies for one variable and two variable analysis accurately	Selects and applies the most appropriate tools and strategies for one variable and two variable analysis accurately
Connecting (A)				
Connecting the concepts/principles of data analysis to the investigation	Incorporates concepts/principles of data analysis with weak connections to the investigation	Incorporates concepts/principles of data analysis with simple connections to the investigation	Incorporates concepts/principles of data analysis with appropriate connections to the investigation	Incorporates concepts/principles of data analysis with strong connections to the investigation
Representing (K)				
Creating an appropriate variety of mathematical representations within the investigation	Few representations are embedded in the investigation	Some representations are embedded in the investigation	An adequate variety of representations are embedded in the investigation	An extensive variety of representations are embedded in the investigation
Communicating (C)				
Using mathematical symbols, labels, units and conventions related to data analysis correctly	Sometimes uses mathematical symbols, labels and conventions related to data analysis correctly within the investigation	Usually uses mathematical symbols, labels and conventions related to data analysis correctly within the investigation	Consistently uses mathematical symbols, labels and conventions related to data analysis correctly within the investigation	Consistently and meticulously uses mathematical symbols, labels and conventions related to data analysis correctly and in novel ways within the investigation
Integrating narrative and mathematical forms of communication in the investigation	Either mathematical or narrative form is present in the investigation but not both	Both mathematical and narrative forms are present in the investigation but the forms are not integrated	Both mathematical and narrative forms are present and integrated in the investigation	A variety of mathematical and narrative forms are present and integrated in the investigation and are well chosen



Name: _____

Topic: _____

PART A: Required Elements - Written Report/ Presentation (Formal)

- | | |
|--|--|
| <input type="checkbox"/> Cover page | <input type="checkbox"/> Summary Statistics |
| <input type="checkbox"/> Background Information | <input type="checkbox"/> Conclusions |
| <input type="checkbox"/> Statement of Problem/Area of Investigation | <input type="checkbox"/> Evaluation of your techniques |
| <input type="checkbox"/> Presentation of Data (tables, charts, etc.) | <input type="checkbox"/> Bibliography |
| | <input type="checkbox"/> Appendix items (data, slides of Power Point presentation) |

Statement of the Task:

1. There is a clear statement of the question/issue that you investigated
2. There is background information related to your topic

Data Collection:

4. Data and information has been collected. (Can be secondary or primary)
5. Data is organized in a form appropriate for analysis (tables, charts, graphs)
6. The data is relevant to your task

Analysis:

7. Report includes one variable statistics and appropriate analysis (descriptive and qualitative)
8. Report includes two variable statistics and appropriate analysis
9. Report includes modeling trends in data (linear, quadratic, exponential, logarithmic, etc)
10. Report includes predicting frequencies in data and forecasting future values

Conclusions:

11. Report includes interpretations and conclusions which are consistent with the data

Part B: Required Elements – Oral Presentation (Limited to 15 minutes)

- Statement of your problem/area of investigation
- Highlights from the background information
- Presentation of data (tables, charts, graphs)
- Summary of analysis
- Interpretations and conclusions

Oral Report Assessment:

1. All required elements will be assessed (See rubric)
2. Peer critiques

MDM4U CULMINATING PROJECT: Peer Critique – Oral Presentation

Name of Presenter _____

Overall Rating:

Level

Project Topic _____

Presentation Start Time: _____ End Time: _____

Name of Evaluator _____ Date _____

Directions: Critique your classmate's presentation using the criteria provided. Your critique will be assessed by your teacher and shared with the presenter. Use the scale provided to rate the presentation. ("1" is lowest and "4" is the highest) **Provide evidence to support your evaluations.**

Delivery:				
Speaking voice is clear, relaxed and audible	1	2	3	4
Pacing is appropriate and effective for the allotted time	1	2	3	4
Uses visuals effectively (e.g., overheads, charts, graphs, power point)	1	2	3	4
Visuals/handouts are easily understood	1	2	3	4
Responds well to audience questions about the investigation	1	2	3	4
Evidence:				
Content:				
Demonstrates a thorough understanding of the investigation	1	2	3	4
Clearly and concisely explains ideas	1	2	3	4
Applies MDM4U course knowledge and tools	1	2	3	4
Uses mathematical terms, conventions and symbols correctly	1	2	3	4
Evidence:				
Organization:				
Introduction clearly describes the investigation	1	2	3	4
Logical presentation of key ideas and information	1	2	3	4
Effective transitions between ideas and information	1	2	3	4
Conclusion is persuasive and related to the investigation	1	2	3	4
Evidence:				

Comments/Suggestions: