**Task 1:**

COMPETENCIES

**981.1.1** : **Capstone**

The graduate integrates and synthesizes competencies from across the degree program, thereby demonstrating the ability to participate in and contribute value to the chosen professional field.

INTRODUCTION

In this task, you will organize ideas for your capstone project so that you can create your project more efficiently. To start your work on the capstone project, you must discuss your ideas for the project with a course instructor. After you agree on the topic, you must fill out the top portion of the attached “Data Management and Data Analytics Capstone Topic Approval Form” and send it to the course instructor, who must digitally sign it and lock it to prevent further changes to the document. The completed form signed by the course instructor must be uploaded with the other documents required for this task.

It is the policy of Western Governors University (WGU) that student capstone projects should not be based on or include any proprietary or classified information or material belonging to your employer or any other organization. Such material belongs to this third party and is referred to as “restricted information,” which requires you to obtain the party’s permission to include the work. If your capstone project is based upon and/or includes restricted information, you must submit two additional documents with your Task 1 submission. You must attach the “IT Capstone Release Form" AND a signed letter from the owner stating you have permission to use the restricted information.

REQUIREMENTS

*Your submission must be your original work. No more than a combined total of 30% of the submission and no more than a 10% match to any one individual source can be directly quoted or closely paraphrased from sources, even if cited correctly. The originality report that is provided when you submit your task can be used as a guide.  
  
You must use the rubric to direct the creation of your submission because it provides detailed criteria that will be used to evaluate your work. Each requirement below may be evaluated by more than one rubric aspect. The rubric aspect titles may contain hyperlinks to relevant portions of the course.  
  
Tasks may****not****be submitted as cloud links, such as links to Google Docs, Google Slides, OneDrive, etc., unless specified in the task requirements. All other submissions must be file types that are uploaded and submitted as attachments (e.g., .docx, .pdf, .ppt).*

A.  Complete the attached “Data Management and Data Analytics Capstone Topic Approval Form.”

B.  Complete the attached “Data Management and Data Analytics Capstone Release Form” with *all* required signatures. Be sure to choose the option that applies to your capstone project and digitally sign the form where applicable.

*Note: More than one signature is required on the release form.*

C.  Acknowledge sources, using in-text citations and references, for content that is quoted, paraphrased, or summarized.

D.  Demonstrate professional communication in the content and presentation of your submission.

**Task 2:**

COMPETENCIES

**981.1.1** : **Capstone**

The graduate integrates and synthesizes competencies from across the degree program, thereby demonstrating the ability to participate in and contribute value to the chosen professional field.

INTRODUCTION

This task will consist of a proposal for a data management and data analytics project that was approved by a course mentor. The proposal will identify a problem and propose a data solution to the problem. Your proposal will also explain how you plan to implement your project to successfully resolve the problem, including a methodology for project development.  
  
Your work for Task 2 will not be evaluated until the appropriate forms in Task 1 have been submitted and evaluated.

REQUIREMENTS

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**Project Overview**

A.  Create a proposal for a data management and data analytics project by doing the following:

1.  Describe a research question or organizational need that your project will solve.

2.  Describe the context and background for your project.

3.  Summarize **three** published works that relate to the research question or organizational need in part A1.

*Note: These published works should serve as background information to support your proposed project and may include interviews, white papers, research studies, or other types of work by industry professionals.*

a.  Describe how *each* published work informs the development of the project.

4.  Summarize the data analytics solution you will implement to address the research question or organizational need described in part A1.

5.  Explain how the data analytics solution will provide a benefit and support a decision-making process.

**Data Analytics Project Plan**

B.  Describe your data analytics project plan by doing the following:

1.  Describe the goals, objectives, and deliverables for the project.

2.  Describe the scope of the project.

3.  Explain how you will use a project planning methodology (e.g., ADDIE, SDLC, Agile, CRISP-DM, or SEMMA) to organize and implement your project.

4.  Provide a timeline with milestones for your project, including the duration and start and end dates for *each* milestone.

5.  Provide a list of resources and *any* associated costs needed to implement the project (e.g., hardware, software, work hours, third-party services).

6.  Describe the measurable criteria you will use to evaluate the success of project execution.

**Design of Data Analytics Solution**C. Describe the data analytics solution you will use to address the research question or organizational need identified in part A by doing the following:

1.  Identify the hypothesis of the project.

2.  Identify the analytical method (i.e., descriptive, diagnostic, predictive, or prescriptive) you will implement in your data analytics solution.

a.  Justify why the analytical method identified in part C1 is appropriate for your project.

3.  Describe the tools and environments that you will use to produce the data analytics solution, including any applicable third-party code.

4.  Describe the methods and metrics you will use to evaluate the statistical significance of your data analytics solution.

a.  Justify why the chosen methods and metrics are appropriate for evaluating the statistical significance of your data analytics solution.

5.  Describe how you will assess the practical significance of the data analytics solution, including specific criteria to determine whether it has provided the expected benefits and supported a decision-making process.

6.  Describe the tools and graphical representations you will use to visually communicate the findings of your data analytics solution.

**Description of Dataset(s)**

D.  Write a description of the data by doing the following:

1.  Identify the source(s) of the data.

2.  Discuss why this dataset is appropriate for the stated goals of your project.

3.  Describe the data collection methods you used.

4.  Summarize your observations on the quality and completeness of the data.

5.  Discuss data governance, privacy and security, ethical, legal, and regulatory compliance considerations that relate to the dataset and the proposed project.

a.  Describe the precautions you will need to take when working with and communicating about the data for *each* of the considerations in part D5.

E.  Acknowledge sources, using in-text citations and references, for content that is quoted, paraphrased, or summarized.

F.  Demonstrate professional communication in the content and presentation of your submission.

**Task 3:**

COMPETENCIES

**981.1.1** : **Capstone**

The graduate integrates and synthesizes competencies from across the degree program, thereby demonstrating the ability to participate in and contribute value to the chosen professional field.

INTRODUCTION

Before starting this task, ensure that Tasks 1 and 2 have a passing score. If Task 1 or 2 has not yet passed, your Task 3 submission will be returned without evaluation.  
  
In this task, you will complete your capstone by writing a report that summarizes your data analytics project, including an overview of the project, a discussion of how the execution of your project differed from your plan, a discussion of your project methodology, and an evaluation of your project results. You will also submit a recorded summary of your project.

REQUIREMENTS

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Write a report summarizing your completed data analytics capstone project by doing the following:

**Project Overview**

A.  Summarize the following elements of your capstone project:

•  the research question or organizational need that your capstone addressed

•  the scope of your project

•  an overview of your solution, including any tools and methodologies used

**Project Plan**

B.  Summarize the execution of your project, including how the execution of the following elements differed from the plan developed in part B of Task 2:

•  project plan

•  project planning methodology

•  project timeline and milestones

**Methodology**

C.  Discuss your data selection and collection process in detail, including each of the following elements:

•  how your actual data selection and collection process differed from your plan

•  how you handled any obstacles you encountered while collecting your data

•  how you handled any unplanned data governance issues

1.  Discuss the advantages and limitations of the data set you used.

D.  Explain your data extraction and data preparation processes, including the tools and techniques you used, and explain why these processes were appropriate for your data.

E.  Report on your data analysis process by doing the following:

1.  Describe the methods you used to analyze the data.

2.  Discuss the advantages and limitations of the tools and techniques you used to analyze the data.

3.  Provide a step-by-step explanation of how you applied the analytical methods in part E1 to the data, including how you verified that the data satisfied the assumptions or requirements for any analytical methods you used.

**Results**

F.  Evaluate the success of your data analytics project by doing the following:

1.  Evaluate the statistical significance of the analysis, including accurate calculations.

2.  Evaluate the practical significance of your data analytics solution, including specific examples.

3.  Evaluate the overall success and effectiveness of the project.

G.  Summarize the key takeaways of your analysis by doing the following:

1.  Summarize the conclusions drawn from your analysis.

2.  Explain why your chosen tools and graphical representations for visually communicating findings support effective storytelling.

3.  Recommend **two** courses of action based on your findings.

H.  Provide a link to a Panopto recording in which you present a summary of your capstone project and findings from the analysis for an audience of data-analytics peers. Your summary should include the following elements:

•  a summary of your research question or organizational need

•  a demonstration of the functionality of any code you used for your data analytics solution

•  an outline of the findings and implications of your analysis

*Note: For instructions on how to access and use Panopto, click on the "Panopto How-To Videos" web link. To access Panopto's website, navigate to the web link titled "Panopto Access", and then choose to log in using the “WGU” option. If prompted, log in using your WGU student portal credentials, and then it will forward you to Panopto’s website. To meet the assessment requirements, you must submit your recording URL for evaluation, along with your multimedia presentation.*

*To submit your recording, upload it to the Panopto drop box titled “BSDMDA CAPSTONE— QMM1/D195.” Once the recording has been uploaded and saved into Panopto’s system, retrieve the URL of the recording from Panopto and copy and paste it into the Links option. Upload the remaining task requirements using the Attachments option.*

**Appendices**

I.  Provide evidence of project completion by submitting any of the following elements that are relevant to your project:

•  the code you used to support your project

•  a copy of *all* data you used for the data analytics solution

•  web sources that were used to acquire the data or segments of third-party code to support the application

•  other relevant project deliverables, such as process diagrams, tables, or any training or installation materials

J.  Acknowledge sources, using in-text citations and references, for content that is quoted, paraphrased, or summarized.

K.  Demonstrate professional communication in the content and presentation of your submission.