Southern New Hampshire University

DAT 690 Final Project Guidelines and Rubric

Overview

Your assignment for this course is to critically assess the pilot work you completed in the prerequisite course, DAT 650, and to see the project through and complete the separate but complementary final presentation and reflection components. To do this successfully, you will need to solicit and incorporate feedback from both your peers and your instructor (and the feedback you received in DAT 650) as well as your own lessons learned throughout the Data Analytics program.You will also need to draw on knowledge of statistical analysis (including model building) and programming acquired from prior SNHU coursework. The project is divided into **three milestones**, which will be submitted at various points throughout the course to scaffold learning and ensure quality final submissions. These milestones will be submitted in **Modules Two, Three, and Five**.Both capstone components should be submitted together for evaluation in **Module Nine**.

This capstone will be assessed somewhat differently than other courses you have taken online at SNHU. There are two separate components that will operate together to comprise the whole capstone experience and ***are not*** assessed separately. Your instructor will guide you through this process, keeping a running narrative of your strengths and weaknesses in relation to the course outcomes as you progress through the class. Your work is expected to meet the highest professional standards.

In this assignment, you will demonstrateyour mastery of the following course outcomes:

- Conduct thorough needs assessments using statistical, analytical, and applied research techniques and consult organizational stakeholders on business requirements to offer logical and effective recommendations for data analytics initiatives.
- Design and implement advanced modeling techniques, such as predictive modeling, risk-assessment and optimization, and analytics algorithms using structured and unstructured data to provide new solutions to complex organizational issues.
- Communicate with professionalism, accuracy, and transparency using interactive and dynamic visualization tools to translate technical information and offer effective solutions to organizational stakeholders.
- Apply effective collaborative and essential project management strategies to facilitate and improve the work of diverse and multi-functional teams, streamline processes, and lead projects to successful outputs.
- Protect the integrity and privacy of data, organizations, and consumers through advanced technology solutions and ethical and legal practices in all aspects of the profession.
- Employ applied, contextual knowledge of an organization’s industry to target new data opportunities that improve an organization’s competitiveness, effectiveness, and longevity.
- Adapt and implement innovative methods, models, and technologies that allow for adaptability to new and unexpected changes and improve the agility of data analytics projects.
- Position data analytics as a competitive advantage to organizations by accurately communicating the cost and benefits of data analytics projects and technologies as well as the long-term benefits of data-driven decision making.

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Prompt

You will evaluate your analytic plan from DAT 650, then incorporate peer and instructor feedback to produce a plan modification and then implement that plan. You will share your findings with the class as a presentation developed for your target audience, as well as a personal and professional reflection.

Capstone Component One: Data Analytic Solution Presentation

For the first of two capstone components, you will build on the plan that was developed in DAT 650 and create a presentation that highlights a complete data analytic solution to the problems and questions indicated by the case study that you chose. This will require you to evaluate the plan that you previously created in DAT 650 and analyze the results of your pilot run.In doing so, this should inform the creation of a presentation that should detail your solution in the larger context of the problem by discussing how your proposed solution represents reproducible analysis.

The format of your presentation should be fitting for your audience—in this case, your instructor and peers. You must utilize a tool that will allow you to record your voice as you walk your audience through your visual presentation. A visual recording is not required, but it is essential that your instructor be able to listen to your explanations and defense while viewing your presentation.

Note: Should you choose to change your topic from that which you developed in DAT 650, you will be expected to meet the same deadlines and required sections as outlined for those who maintained the same topic of focus. This means that you will be responsible for completing more work, and of professional quality, in the same amount of time.

Include, but do not limit yourself to, the following sections in your complete analytic solution presentation. If there are elements of your project that are important, but not covered below, you should include them in your presentation:

1. **Introduction:**This should include a statement of problem, purpose, and type (e.g., prescriptive, descriptive, or predictive) of research or analysis, and significance of research or analysis. You must provide the background context of the case you are working on, including the organization and industry information, and may want to discuss the central concerns and principles of the data problem at hand. In general, include all information that you think is necessary to establish a comprehensive analysis and foundation for understanding your chosen topic.
2. **Pilot Evaluation:** Consider the pilot run you performed in DAT 650. Discuss the successes and failures of this pilot run. What areas of concern did you identify? Extrapolate pilot results to full implementation results and estimate reasonable return on investment for full implementation. Be mindful of your audience (organization executives, in this case), as they are the ultimate decision makers that you need to convince.
3. **Plan Modification:** Given your review of your original plan, create a data analytic architecture pattern with details for full implementation. Be sure to address data quality, integrity, and protection specific to the organization, industry, and problem that you are addressing. You will need to create visualizations representing your solutions for various stakeholders, stakeholders which you will need to identify. You will also need to develop a project plan detailing the involved stakeholders, timeline, and strategies for professional and effective collaboration that will be used to ensure success.
4. **Plan Implementation and Results:** You will completely implement your solution, detailing the steps taken, methods and techniques used, and results obtained.

5. **Conclusions and Implications:** Summarize the conclusions from your full implementation. What conclusions did you draw and how will your results impact the organization, your project, and future projects? Articulate the costs and benefits of the data analytic problem and solution created for this organization, and for this industry and potential use in other industries.
6. **Recommendations:** What new data opportunities, recommendations for alternative uses, and recommendations for future and continued use do you have? Be sure to provide brief but focused explanations of why these potential uses are valid uses of your project, and what alterations will likely need to be made.

Capstone Component Two: Personal and Professional Reflection

For the second and final component of your capstone, you will write an essay in which you discuss the process and outcomes of this project, as well as how your coursework culminated in the capstone project. This may include discussions of unforeseen problems or obstacles, and any unexpected surprises. The essay should also discuss your identified strengths and problems that you encountered while completing the project. Finally, the essay will discuss how the capstone project may be useful in the job market or for furthering your education.

You should envision this component as a personal reflection on the capstone and your experience in the Data Analytics program as a whole. For instance, relative to the capstone, you could discuss what you did (or intended to do), and then consider what worked well, what challenges you faced, and what you would change or do differently to make your experience better. In reflecting on your time here at SNHU, you might discuss where you started, where you are currently, and where you see yourself going. Note that this component is not about evaluating the capstone itself, but rather your experience within the capstone project and your reflection of your own knowledge, skills, and abilities.

Your project reflection should include, but is not limited to, the following:

- What ethical considerations did or should you have made during your project, and why?
- What is the importance of and how can you ensure data integrity, protection, and appropriate use within the context of this project and future projects?
- How could you best position data analytics as an advantage in your professional life? Why is this important? What has this project proved about the use of analytics?
- If you were to implement your analytic project/solution in a real company or organization, how would you approach collaborative and project management needs that you might not have had to deal with when developing your own, single project?
- Reflect upon the communication, collaboration, cross-functional and diverse teams, and leadership skills and strategies that have developed throughout this project. How will these benefit you in your professional life and what further learning and development do you see for yourself?
- Overall, how would you characterize your capstone experience from a personal and professional perspective?
- Reflect on the significance of the capstone in relation to your own experience at SNHU.
- Where do you see your own strengths and weaknesses in relation to the outcomes for this capstone experience?
- What connections do you see between your capstone and your academic program?
- How will you apply what you have learned to your future academic and/or professional life?
- Has your capstone helped you create a framework for practice that promotes ethical approaches to public service and political decision making?

- Which of your professional skills (e.g., reading comprehension, critical thinking and analysis, research, writing, communication) have improved the most as a result of your coursework in this program, and why?

Milestones

Milestone One: *Introduction and Pilot Evaluation*
In **Module Two**, you will submitthe introduction and pilot evaluation of your data analytic presentation. In the first milestone leading to the successful completion of your first capstone component, re-state the problem/challenge within General Electric that you are addressing and evaluate your pilot run from DAT 650. Plan how you intend to incorporate feedback. **This milestone will be graded with the Milestone One Rubric.**

Milestone Two:*Pilot Modification*
In **Module Three**, you will submit the pilot modification of your data analytic presentation. Incorporating lessons learned from the pilot run in DAT 650 and Milestone One in DAT 690, revise and modify your analytic plan for your second milestone. **This milestone will be graded with the Milestone Two Rubric.**

Milestone Three: *Plan Implementation*
In **Module Five**, you will submit the plan implementation of your data analytic presentation. Now is the time to implement your revisions and modifications to your analytic plan. In the third milestone of the first capstone component, you will summarize the implementation of your revised plan. **This milestone will be graded with the Milestone Three Rubric.**

Capstone Component One: *Data Analytic Presentation*
In **Module Nine**, you will submit Capstone Component One, the data analytic presentation. It should be a complete, polished artifact reflecting the incorporation of feedback gained throughout the course. Assemble the work you have completed over all of the earlier modules—including your final draft, flowcharts, and graphical/tabular output—into a cohesive final presentation. **This submission will be graded with the Final Project Rubric.**

Capstone Component Two: *Personal and Professional Reflection*
In **Module Nine**, you will submitCapstone Component Two, the personal and professional reflection. It should be a complete, polished artifact reflecting the incorporation of feedback gained throughout the course.Review the journal assignments that you have submitted throughout the term and reflect upon your capstone experience. Write a personal and professional reflection on your experience in both this course and the MS in Data Analytics program. **This submission will be graded with the Final Project Rubric.**

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Deliverables

Milestone	Deliverable	Module Due	Grading
1	Introduction and Pilot Evaluation	2	Graded Separately; Milestone One Rubric
2	Pilot Modification	3	Graded Separately; Milestone Two Rubric
3	Plan Implementation	5	Graded Separately; Milestone Three Rubric
	Capstone Component One: Data Analytic Presentation	9	Graded Comprehensively; Final Project Rubric
	Capstone Component Two: Personal and Professional Reflection	9	Graded Comprehensively; Final Project Rubric

Final Project Rubric

This rubric will be applied to all components as a whole, and no component will be assessed on its own. The "Possible Indicators of Success" are examples for you and the instructor of the types of concepts to look for to demonstrate proficiency. They are neither exhaustive nor proscriptive and should be used as guides for illustrating how your capstone embodies the outcome. All outcomes are weighted equally.

MS-DAT-01: Conduct thorough needs assessments using statistical, analytical, and applied research techniques and consult organizational stakeholders on business requirements to offer logical and effective recommendations for data analytics initiatives.	**Proficient** 100%	**Not Proficient** 0%
Possible Indicators of Success		
Does the capstone demonstrate the student's ability to recognize organizational and stakeholder information and consulting needs?		
Does the capstone demonstrate the student's ability to conduct needs assessments using appropriate statistical, analytical, and applied research techniques?		
Does the capstone demonstrate the student's ability to perform logical evaluations to expose needs and offer logical recommendations?		
MS-DAT-02: Design and implement advanced modeling techniques, such as predictive modeling, risk-assessment and optimization, and analytics algorithms using structured and unstructured data to provide new solutions to complex organizational issues.	**Proficient** 100%	**Not Proficient** 0%
Possible Indicators of Success		
Does the capstone demonstrate the student's ability to design advanced modeling techniques appropriate for an identified problem?		
Does the capstone demonstrate the student's ability to implement modeling techniques to attain viable results or expose additional problems or organizational needs?		
Does the capstone demonstrate the student's ability to partner various types of models with various types and sources of data appropriately to provide structure to complex issues?		

MS-DAT-03: Communicate with professionalism, accuracy, and transparency using interactive and dynamic visualization tools to translate technical information and offer effective solutions to organizational stakeholders.	**Proficient** 100%	**Not Proficient** 0%
Possible Indicators of Success		
Does the capstone demonstrate the student's ability to present or communicate process and solutions effectively to a broad range of audiences?		
Does the capstone demonstrate the student's ability to implement and integrate visualization tools and techniques that offer effective data translations?		
Does the capstone demonstrate the student's ability to articulate necessary information with professionalism, accuracy, and transparency?		
MS-DAT-04: Apply effective collaborative and essential project management strategies to facilitate and improve the work of diverse and multi-functional teams, streamline processes, and lead projects to successful outputs.	**Proficient** 100%	**Not Proficient** 0%
Possible Indicators of Success		
Does the capstone demonstrate the student's ability to develop effective plans to meet the needs of multiple stakeholders for improving processes and implementing appropriate solutions?		
Does the capstone demonstrate the student's ability to evaluate the needs, benefits, and challenges of diverse and multi-functional teams?		
Does the capstone demonstrate the student's ability to apply evidence-based collaborative strategies to lead successful projects and solutions within organizational contexts?		
MS-DAT-05: Protect the integrity and privacy of data, organizations, and consumers through advanced technology solutions and ethical and legal practices in all aspects of the profession.	**Proficient** 100%	**Not Proficient** 0%
Possible Indicators of Success		
Does the capstone demonstrate the student's ability to develop legally sound projects that adhere to regulations, laws, and policies that govern the use of data?		
Does the capstone demonstrate the student's ability to evaluate various aspects of the data analytics profession for potential and existing ethical issues?		
Does the capstone demonstrate the student's ability to integrate strategies, techniques, and technology to protect data integrity and privacy of information?		
Does the capstone demonstrate the student's ability to reflect on ethical and social concerns and issues related to data analytics and use?		
MS-DAT-06: Employ applied, contextual knowledge of an organization's industry to target new data opportunities that improve an organization's competitiveness, effectiveness, and longevity.	**Proficient** 100%	**Not Proficient** 0%
Possible Indicators of Success		
Does the capstone demonstrate the student's ability to expose new areas and possibilities for data analysis within various industries that potentially add organizational value?		
Does the capstone demonstrate the student's ability to target valid or reasonable opportunities for data usage?		
Does the capstone demonstrate the student's ability to translate results of data analyses to multiple contexts and uses within a particular industry?		
Does the capstone demonstrate the student's ability to highlight potential data opportunities that would position data analytics as a competitive advantage for organizations?		
MS-DAT-07: Adapt and implement innovative methods, models, and technologies that allow for adaptability to new and unexpected changes and improve the agility of data analytics projects.	**Proficient** 100%	**Not Proficient** 0%
Possible Indicators of Success		
Does the capstone demonstrate the student's ability to design data analytics projects that adapt to various applications and changes?		

Does the capstone demonstrate the student's ability to implement methods, models, and technologies in innovative, or unique ways?		
Does the capstone demonstrate the student's ability to improve the agility of data analytics projects by implementing tools and techniques that could provide long-term benefits despite changing environments, needs, or inputs?		
Does the capstone demonstrate the student's ability to implement tools and techniques that provide long-term benefits despite changing environments, needs, or inputs?		
MS-DAT-08: Position data analytics as a competitive advantage to organizations by accurately communicating the cost and benefits of data analytics projects and technologies as well as the long-term benefits of data-driven decision making.	**Proficient** 100%	**Not Proficient** 0%
Possible Indicators of Success		
Does the capstone demonstrate the student's ability to effectively communicate the cost-benefit of data analytics technologies and projects to secure stakeholder support and acceptance?		
Does the capstone demonstrate the student's ability to articulate the long-term value of data analytics for organizational and individual decision making?		