University of Victoria
Gustavson School of Business

COM 450   **Summer 2025**
Introduction to Business Analytics

Research Fair

General Instructions:
For your final project in COM 450, you have the opportunity to create an applied analytics-based business case study that integrates what you have learned throughout the class. You will then create a poster and present your findings during a research fair in our last class. Your poster will remain on display in the school for a number of weeks. The assignment is worth 30% of your final grade.

This assignment is designed to provide you with a relevant, job-applicable and self-directed research project to serve as a foundational reference and evidence of data analysis skills, as you prepare for career paths going forward post-graduation.

The assignments must be completed individually. Please feel free to collaborate but your final submission should reflect your own work.

The assignment is due on <u>at the start of class</u> on Wednesday, July 30, 2025. **No exceptions**. <u>You must be in attendance for the duration of the class with your poster printed to earn credit for the Research Fair.</u> You must also submit your supporting materials (i.e., spreadsheets, process documentation, etc.) to the appropriate Brightspace drop box.

Instructor's Note: I am *very* open to helping with all aspects of this project, but you need to start **early** and ask **early**.

Assignment Details:
The research fair will proceed in two phases:

<u>Phase 1: Proposal – Due: June 15, 2025, by 11:59pm to Brightspace</u>
In phase 1 you will have the *option* to submit a proposal of your case study for *feedback only*. This step is highly recommended but not required (i.e., this phase is not part of the grade). In no more than 1-page (single spaced, 12-point font, 1-inch margins), you should outline:
1. what question/problem you will be addressing in your case study,
2. what data set you have selected to answer that question, and
3. what methods you propose to use in exploring and answering your question.

For this assignment, you need to base your analysis off a publicly available dataset. This website has an extensive list of suggestions to help get you started. You may **_not_** use a data set that has been used in-class or is included with the textbook as we are trying to mimic a real data analysis project as much as possible. If you are having trouble sourcing a suitable data set, please get in touch with me.

Given that this is a Business Analytics class, you are required to address a business problem and draw business conclusions in your assignment. This can be interpreted very broadly. You could discuss profit/revenue but you could also tackle problems related to operations, marketing effectiveness, customer churn, etc.

Phase 2a: Research Fair Poster – Due: July 30, 2025, IN-CLASS
In phase 2, you will prepare a *physical* research poster. There are many templates online and your chosen print shop will also likely have a template you can use.

Please note that there will be a small cost associated with printing a poster. One on-campus option is Blink that specializes in wide format printing. Please also ensure you familiarize yourself with the timelines of your chosen print shop so that your poster is ready for the research fair.

While I provide some guidelines below, the overall structure of the poster is flexible. There should be a balance of visuals and text that allows your process and key findings to be understood through the poster as a standalone product. Your poster should be pitched to an applied management audience as opposed to a technical audience. Outputs and insights should be emphasized. Technical details (i.e., interim visualizations, tool justification, user decisions, model assumptions etc.) can be placed in your supplementary documentation submitted to Brightspace. *It is highly likely that these are the parts of your process that I will ask questions about*. Tables and visualizations that support the communication of your results should be included on the poster. Writing and referencing should be appropriate for an upper-level undergraduate class.

As you proceed with your analysis, you should consider the following steps. While all these steps should be fundamental to your process, it is your choice how you choose to convey your process and findings on the poster. You are required to document your process and include it with the supplemental materials you submit to Brightspace. This documentation should enable another person to replicate your analysis.

Data Pre-processing (Cleaning, Preparation)	• Conduct **initial exploratory analysis** of your chosen dataset. (i.e., "Look" at your data using descriptive statistics and visualizations.) • Document the steps you took to **ensure data-integrity**. (i.e., addressing missing values or outliers, etc.)

	• Keep track of any **transformations you performed** (or considered) like sorting or indexing data tables.
Data Analysis	• Conduct **preliminary research** to guide your investigation; for example, if you ask, "How strong is the correlation between ice cream sales and time of year?", it may be useful to plot charts to illustrate your datapoints, for example, plotting a bar chart of the number of ice cream sales for all months in a year. • After preliminary analysis, **choose one data analysis tool/mode**l (e.g. linear regression, optimization modelling, etc.) to perform your analysis. Briefly **discuss why you chose your model/analysis framework**, and why it is a sensible choice for this investigation. • You should also spend some time considering how you iterated to a **final model** that you estimated or used (i.e., for linear regression modelling, you should talk about how you underwent functional form testing, etc.)
Discuss Findings/ Results and Business Implications	• What **trends or relationships did you uncover** from undergoing your investigation? • Utilize **data visualizations/charts** to illustrate your findings, and format them in such a way that is considerate to how people hearing about this analysis for the first time would understand it. • **Do your results reinforce/support the existence of our current understandings**, or do they bring something new to light? **Do they contradict** the prevailing sentiment? These are just some questions to guide your presentation formatting and delivery. • In terms of business implications, **how can these insights be leveraged** to improve the operations/awareness of your chosen topic? • **Was your investigation successful** in achieving your desired results? **Did you uncover any pitfalls/caveats in your data** that you did not foresee? • What are the **limitations** of your results?

Phase 2b: Research Fair "Elevator Pitch" – Due: July 30, 2025, IN-CLASS
While your poster should standalone, you also need to prepare at 2-3 minute "elevator pitch" to accompany your poster. During the research fair, your professor and an external evaluator from KPMG (along with your classmates) will circulate to hear your pitches. You should also be prepared to answer questions that are posed by your professor and the external evaluator. Remember that one of the objectives of this course is to translate technical results into practical management terms. If your

audience can clearly understand and respond to your presented findings, then the door is open for them to be significantly more persuaded. Please create your presentation in a style that would be suitable to brief a management team.

Use of AI:

Please review the *Use of Artificial Intelligence* section of the course outline. Recall that the Use of AI tools, including ChatGPT, *is* permitted in this course to <u>assist in creating code, build formulas, refine and brainstorm questions and to help you edit and proofread your work</u> **only**. AI tools should explicitly **not** be used to *create* your graded materials.

Keep in mind that you <u>must cite</u> any AI-generated material that informed your work and use quotation marks or other appropriate indicators of quoted material when appropriate. Failure to do this will be considered an academic integrity violation. You must also indicate how AI tools informed your process and the final product, including how you validated any AI-generated citations, which may be invented by the AI.

Please note that my standard for transparent use of AI is very high. If you choose to use AI, you must include an acknowledgement statement (see below), the full script of your AI "conversation" as an appendix, and an explicit discussion of any modifications you made to the AI output and/or how you validated all AI information.

<u>Acknowledgement Statement Examples</u> (adapted from <u>Wilfrid Laurier University</u>)

- <u>Sample Statement:</u> I acknowledge the use of [insert AI system(s) and link] to [specific use of generative artificial intelligence]. The prompts used include [list of prompts]. The output from these prompts was used to [explain use].
- <u>Example 1:</u> I acknowledge the use of ChatGPT (https://chat.openai.com/) to generate materials for background research and self-study in the drafting of this assessment. I entered the following prompts on *[insert date]*: *Insert prompt.*
- <u>Example 2:</u> The output from the generative artificial intelligence was adapted and modified for the final response. I acknowledge the use of ChatGPT (https://chat.openai.com/) to generate materials that were included within my final assessment in modified form. I entered the following prompts on *[insert date]*: *Insert prompt.*
- <u>Example 3:</u> I acknowledge the use of ChatGPT (https://chat.openai.com/) to refine the academic language and accuracy of my own work. On *[insert date]* I submitted my entire essay *[link to original document here]* with the instruction to "Improve the academic tone and accuracy of language, including grammatical structures, punctuation and vocabulary". The output [*link to output]* was then modified further to better represent my own tone and style of writing.

> - <u>If Generative AI is Permitted or Required but Not Used:</u> No content generated by generative AI has been used in this assessment.

Grading Details

Each assignment is worth 30% of your final grade. This assignment will be graded according to the following criteria.

Criteria	Description	Marks
Data	• A comprehensive description of the data. • This may include the data source, details on variables, potential relationships between the variables, descriptive/visual analysis.	/5
Problem	• A description of the business problem you are trying to answer using data analysis.	/1
Tool Use	• A clear description of the tool(s) used, and a clear discussion of any user decisions made and why.	/8
Results	• A clear description of the results both in technical terms and in the context of the problem.	/5
Conclusions	• A set of clear conclusions in the context of the data and problem.	/10
Presentation	• Poster reflects a level of professionalism that would be expected when briefing a management team. • An effective "elevator-pitch" that reflects a level of professionalism that would be expected when briefing a management team (i.e., eye contact, not reading off poster, pace, etc.). • Questions are answered well.	/10
Spelling and Grammar, and Citations	• Writing and references are appropriate for an upper-level undergraduate class.	/1
	Total	/40