

**STAT 437 - Paper Review/Critique**  
**Due: Tuesday, April 5 on Learn (Dropbox Provided)**

The goal of this assignment is to have you demonstrate course knowledge and engage with scientific research directly. My intention is to give you **as much** flexibility with this project as possible. If there is a direction that you would like to take with this project, that is not listed here, please email me for us to discuss. This assignment **must be completed individually**. Please read these directions carefully, and ask any questions you may have.

In this assignment you are to find a published paper in a **peer-reviewed** journal which is relevant to the course material. The paper can either be an applied paper (from any field) which applies methods that we have talked about (longitudinal analysis or survival analysis) **or** it can be a methodological paper (in Statistics) that explores ideas we talked about, or extensions of these ideas. You are then to read the article, attempt an understanding of it, and provide a summary of the findings and your thoughts on what the authors have done. Your thoughts on the paper may be critical, pointing out shortcomings in the paper's methodology or providing thoughts as to what *should* have been done instead. Your thoughts on the paper may be complementary, indicating the strengths of the choices that the authors made (or perhaps the way that they communicated their results). After consuming your paper review, I should understand (1) what the paper was about, (2) what the paper did and concluded, (3) the strengths (in your opinion) of the paper, and (4) the weaknesses (in your opinion) of the paper. You are, in essence, acting as an additional peer reviewer for this paper. The format of your review is **entirely your choice**. You may choose to:

1. Submit a standard "essay style", written response [likely between 1500 to 4000 words].
2. Submit a research video presentation, explaining the results [likely a 10 to 30 minutes].
3. Submit a research poster, as though this were to be presented at a conference [there are plenty of research poster layouts online!].
4. Submit a blog-style written response, that integrates multimedia, code, or other components.
5. Build an interactive, R Shiny application.
6. Submit an audio, podcast-style response, walking through the results and shortcomings.

As long as your submission conveys the required information in a clear manner, and showcases an understanding of the course content, you can submit in that format. If you are unsure of whether a particular format will be acceptable, send me an email discussing your idea, and I will confirm with you. Your mark will not be impacted by the medium you choose, except insofar as certain mediums may be easier to convey certain ideas than others. There are two purposes with allowing flexibility in how you submit your response:

1. I hope that being given options allows this to be a more interesting project for you.
2. If there a particular format that you require for a job application or graduate school application (e.g., written response, research poster examples, explainer video, etc.) then I would very much like this course to assist in that!

## Specific Instructions

The following steps should be completed for submission.

1. Select a paper (either applied or methods-based) that covers concepts from this course (or concepts closely related to this course material). The paper must:
  - Be published in a peer-reviewed journal.
  - Be written in English (or, at a minimum, have an official English translation).
  - Be accessible online (through the library or other University provided materials is acceptable. It does **not** need to be open access).
  - Clearly connected to the course material.
2. Send me an email (dylan.spicker@uwaterloo.ca) with the desired paper information attached. I will review it and confirm that it is acceptable. This is done to:
  - Ensure that the paper will be appropriate given the course material.
  - Ensure that students are selecting different papers.
  - Provide you any guidance that I can to help you get started.
3. Read through the paper, in full, attempting to answer the following questions:
  - What did the authors **intend** to accomplish with the research?
  - How did the authors **attempt** to accomplish this?
  - What results or findings do the authors **report** in the paper?
  - Do you think that the authors attempted to answer their intended questions in a suitable manner? Why?
  - Do you think there are any particular shortcomings in the methods used by the researchers?
  - Do you think there are any particular strengths in the methods used by the researchers?
  - Would you have done the same? What would you have done differently?
  - In your opinion, should the results of the paper be accepted? In what ways?
  - Is there anything further that you think is important to know regarding the results of this paper?
4. Prepare a submission that clearly conveys the answers to those questions (and any other questions that you think are pertinent to answer) in the format of your choosing. If you have any questions regarding the format, please reach out and ask!
5. Submit the response on Learn by **Tuesday, April 5** at the latest. There are no deadlines for steps (1), (2), or (3), but please be mindful that with step (2) the more time I have to review the paper, the more help I can be!

## Grading

You will receive a numeric grade **worth 10% of your final grade**. The grade will be broken down as:

- 40% based on your **understanding** of the course material, and how it related to the paper. (Were the ideas that you did communicate, correctly communicated in the context of the paper?)
- 20% based on the **correct application** of your knowledge to the analysis of the paper. (Did you apply the correct ideas to the analysis of the paper?)
- 20% based on the **clarity** of your explanations. (Was your communication of the ideas clear?)
- 20% based on the **conclusions** you draw. (Was your criticism or praise of the paper warranted?)

Note: you will not explicitly receive any grade for the quality of the submission (e.g., the quality of the academic writing, the quality of the video, etc.). However, the quality of your submission will likely impact how clearly communicated your response is! **Also note, the response does not need to be long. A concise answer that addresses all of the points and clearly conveys an understanding is acceptable and encouraged!**

## Potentially Helpful Resources

- University of Waterloo's Library Resources for Finding Journal Articles:  
<https://uwaterloo.ca/library/find-resources/find-journal-articles>.
- Professor S. Keshav's guidance on how to read a paper:  
<https://svr-sk818-web.cl.cam.ac.uk/keshav/wiki/index.php/HTRAP>