Phase V Overview

Phase V Quick Outline of Work

- **Present progress and respond to Phase IV feedback (volunteered)**
  - Create high level overview presentation of project analysis plan and progress
  - Identify project adjustments and concerns for discussion based on reviewer feedback
- **Record and submit final project presentation recording and poster**
  - Create a 15-20 min video recording that first presents your project to a general medical conference audience and clearly lays out the key findings and insights of the analysis
  - Prepare and submit a stand alone poster about your project for the innovation day event
- **Review Phase V presentations and posters**
  - Rate projects based on their presentation and posters as if a judge at a conference competition
- **Complete the final report**
  - Finalize all necessary remaining data analysis and tuning to refine your final results
  - Ensure a cohesive narrative that connects the key findings of the analysis to each other and to the clinical question
  - Articulate the impact, shortcomings, and future directions that derive from your data analysis
  - Include all necessary figures, tables, and supplementary materials
  - Find and incorporate the journal submission formatting guidelines of the journal you identified earlier and complete the manuscript

Phase V Submissions and Deadlines [year long overview (https://canvas.illinois.edu/courses/57094/pages/assignments-overview)]

Deliverable	Type	Due Date	Pts	Submit	Evaluato
Phase V: Final Project Deliverables					

Phase V Progress Presentation/Discussion (https://canvas.illinois.edu/courses/57094/assignments/1431881)	18 min present & discuss		5	[Zoom]	CD
Final Project Presentation (https://canvas.illinois.edu/courses/57094/assignments/1431889)	18 min recording	Fri, Feb 6	25	[**link** (https://forms.gle/aYCqB8wxkzmAG8yD9)]	SP, ME CD
Final Project Poster (https://canvas.illinois.edu/courses/57094/assignments/1431894)	poster pdf	Fri, Feb 6	10		SP, ME CD
Phase V Peer Evaluations (https://canvas.illinois.edu/courses/57094/assignments/1431909)	4 presentation evals	Wed, Feb 18	12	[**link** (https://forms.gle/Ab2U8RiFjefamEB37)]	CD
Final Project Report (https://canvas.illinois.edu/courses/57094/assignments/1431913)	8-10 pg team report	Fri, Feb 27	30	[**link** (https://forms.gle/GydLCcY1D9agtK4Y7)]	ME, CD

Progress Presentation Sessions

- **Phase Objectives**
  - PP-1. Present your project importance and progress quickly to a generalized audience
  - PP-2. Prepare responses to written reviews and respond to feedback and questions from a live audience
  - PP-3. Identify project risks and weaknesses and solicit assistance from other scientists/researchers
  - PP-4. Participate in and provide valuable contributions to data-related scientific discussions science
- **Session Format.** Each one-hour Zoom session will focus on three projects with twenty minutes allocated to each project. Course staff and all students and mentors from the three teams will be encouraged to attend, share their video, and engage in the discussion throughout. With a team's twenty minutes, the following is expected to occur:
  - **Team presentation [~ 12 minutes]**
    - [~2 min] A quick overview of the project importance, goals, and progress through previous phases
    - [~3 min] Responses based on the most valuable feedback from the previous phases, either answers to important questions asked or significant alterations to project plan based on reviewer comments

        - [~6 min] Present analysis results, including choice of models, tuning selections, model evaluations and result interpretation
        - [~1 min] Possible discussion questions for the faculty audience or peers about project struggles or unknowns
    - **Group Discussion [~ 7 mins]**
        - Audience questions and feedback and discussion of team concerns
- The **5pts** of this session will be based on student participation in their presentation throughout the hour.

Final Project Presentation

- **Phase Objectives**
    - P5-1. Relate your final analysis findings to existing and hypothesized clinical interpretations
    - P5-2. Identify and convey the clinical significance of your overall project, the final conclusions you were able to reach, and the possible translational path for your work to impact clinical practice
    - P5-3. Identify the shortcomings of your overall project and potential future work that can address them or extend the analysis
    - P5-4. Compose a concise presentation to communicate the significance, novelty, and impact of your data analysis to a general audience
    - P5-5. Deliver a short conference talk to a general audience about the significance, novelty, and impact of your data analysis
- **Overview**. In Phase V, we will simulate a medical conference research competition. Each team will submit a stand alone poster and a video recording of a presentation describing the significance, novelty, methods, findings, and impact of their data analysis project. These submissions will be judged by their peers and by the course instructors. Top projects will be offered an opportunity to present at Capstone Innovation Day
- The **project presentation** recording must be 15-20 minutes of your team clearing explaining your project to a general audience that includes a mixture of clinician, data scientists, biomedical researchers and scientists from related areas. The recorded videos must be formatted as a .MP4, .MOV, .AVI, or .WMV file and uploaded to a cloud hosting service (preferably Box, Google Drive, or OneDrive). The team will need to edit the sharing permissions to make their video public and downloadable and submit the corresponding cloud URL.
    - While any professional presentation style is acceptable, the teams may consider using the Carle Illinois College of Medicine theme: [**16:9 Presentation PowerPoint Template (https://docs.google.com/presentation/d/19ZgN2BB5b3a4QTcA6Br-PkyBUZrOEB84/edit?usp=sharing&ouid=112720458734300558106&rtpof=true&sd=true)**]
- **Evaluation** of the presentation will be based on based on several criteria (***tentative***):
    - Presentation Contents:

        - Provides the clear and necessary introduction and background for understanding the significance of its clinical question and the relevance of its applied data analysis methods.
        - Demonstrates competency in acquiring, processing, and managing data sets appropriate to addressing the clinical problem.
        - Contains current and correctly applied analysis methods for addressing the research question.
        - Contains clear presented data analysis results that are supported by compelling and informative tables and visualizations.
        - Conveys significant data analysis findings with a translational path to impacting clinical practice.
        - Clearly addresses its main shortcomings and discusses potential future directions
        - Demonstrates an sizable amount of effort or complexity in the completed work
    - Presentation and Team Efforts
        - The presentation was well organized with strong visual aesthetics (consider if the presentation was at the appropriate level of detail, focused, interesting, and flowed well from introduction to conclusion).
        - The presentation delivery was professional and engaging (consider the pacing, emphasis, voice level, mannerisms) for the intended target audience.
        - The presenters demonstrated familiarity with the material and handled responses to questions well.
        - There appeared to be an equitable division of labor between the team members.

Final Project Poster

- **Phase Objectives**
    - P5-6. Communicate the significance, novelty, and impact of your data analysis through a stand alone-poster at a medical conference
- The **project poster** for your project must be for a mostly stand alone, first-time viewing general science audience, as if at a scientific conference. The poster should be submitted as a .PDF file with a total size less than 10MB.
    - Any professional template is again acceptable. The Carle Illinois College of Medicine theme templates are
        - **3'x4' Vertical Poster Powerpoint Template (https://docs.google.com/presentation/d/1fgb0ecQSBbLzn8t8n8amyBpGyDYFxUgo/edit?usp=sharing&ouid=112720458734300558106&rtpof=true&sd=true)**
        - **4'x3' Horizontal Poster Powerpoint Template (https://docs.google.com/presentation/d/1kMLZzoowLUZXCQRTRF774qd7Z9SszdTK/edit?usp=sharing&ouid=112720458734300558106&rtpof=true&sd=true)**

Critical Evaluation of Peer Presentations

- **Phase Objectives**
  - E-1. Read, understand, and think critically about data analysis presentations
  - E-2. Corroborate and assess the soundness of reported research in domains outside your expertise
  - E-3: Provide meaningful and professional peer review feedback that resembles a medical conference competition
- **Phase Peer Evaluations**: We will assign every student to review **four** submitted reports and provide feedback to their peers. The purpose of this exercise is to give reviewers exposure to the efforts and outputs of other teams and exercise the ability to read and think critically about analyses in other domains presented to them and practice communicating their questions or suggestions. For the teams reviewed, this provides additional outside perspectives on the presentation and direction of their project that they have the chance to consider

Final Project Report

- **Phase Objectives**
  - P5-7. Finalize your report to coherently communicate the value of your data analysis and format your report for a submission to a potential journal or venue
  - P5-8. Disclose the role of Generative AI in your data analysis and provide resources to communities of researchers who would use your datasets in the future
- Your **Final Report** should be formatted and structured like a technical/medical journal publication, specifically tuned for your previously identified target journal. The report should be 8-10 pages of single-spaced 12 pt font of main text with several well-formatted tables and figures. All additional information should be submitted as a single, well-labelled, supplementary document or zipped directory. The final report should be re-edited into a single coherent narrative that describes the significance, novelty, methods, findings, and impact of the data analysis project so that artifacts from previous phases do not stand out. The final report should convey the clinical significance of your overall project, the final conclusions you were able to reach, and the possible translational path for your work to impact clinical practice. The discussion section should also comment on the the major shortcomings of your overall project and potential future work that can address them or extend the analysis. The report submission form will ask you to disclose your use of Generative AI and most useful resources for your dataset.
- It is recommended that the final report format should include the following sections:
  - **Title, Authors, and Affiliation**
  - **Project Abstract** (*Revised*)

- **Introduction and Literature Review** (*Revised*)
- **Analysis Methods**
  - The analysis methods should contain enough detail that a new team wishing to recreate your analysis on the same data would be able to come close. Feel free to keep the description more high level in the main text if a longer description is available in the supplementary materials.
  - Descriptions and figure(s) for data extraction, pre-processing, selection, transformation, and analysis (*Revised*)
  - Specifics about the data manipulation, statistics, or machine learning packages, models, and parameters used in the analysis (*Revised*)
  - Model Tuning: Summarize the steps taken to optimize your models, including parameter adjustments and any cross-validation techniques (*Revised*)
- **Comprehensive Data Analysis Results**
  - Dataset Summary Statistics: Provide an overview of your dataset contents to provide context (*Revised*)
  - Analysis Support: Summarize the rationale of applying your models/approach and how they were used and evaluated (*Revised*)
  - Key Findings: Highlight the most important outcomes from each step of your analysis and your interpretations (*Revised*)
  - Clinical Significance: Relate your key findings to existing knowledge in clinical literature in practice (***New***)
- **Discussions/Conclusions (*New*)**
  - Overview: Present the key take away insights from your analysis and they relate to existing clinical knowledge or practice
  - Caveats: Acknowledge the key shortcomings of the analysis and future directions that could uncover additional insights or increase the impact of the work.
- **References** - cited throughout and listed at the end (*Revised*)
- **Supplementary Figures, Tables, and Methods** (*Revised*)
  - Figures, tables, and additional methods descriptions/code that are included in the supplement, should have proper numbering and descriptions, and be cited in the main report text.

- **Report Evaluation**: Submissions will be evaluated by faculty and peers on the following (***tentative***):
  - Abstract and literature review is clear, concise, and comprehensive
  - Updates previous phase content (abstract, literature review, methods, dataset description, references, etc)
  - Organizes report with clear flow, integrating materials across phases
  - Figures and tables are numbered, cited, and interpretable by reader
  - Supplementary content is cleanly cited and organized

Follows professional journal style with correct tone, spelling, and grammar