CE 460 – Engineering Hydrology
Course Project

In the class project, student teams work on a hydrologic analysis, with a focus on one hydrologic variable of interest. You will be using data resources and analysis techniques covered in the lectures and homework applied to a real-world investigation or design scenario. The use of the HEC-HMS model (or other modeling frameworks) is encouraged. This project is open ended. Please see the provided examples for potential inspiration. Additional innovative ideas are welcome. I am expecting you to come talk with me about your potential project topics.

Project Teams
Project teams (of two or three) will be self-selected unless it becomes clear it would be helpful to have a process for paring up. In the project planning and execution, you will be required to clearly identify the division of labor.

Table 1. CE 460 Class Project Schedule

Task	Date	(%)	Page
Project Proposal	February 7	**10%**	**2**
Project Draft	March 27	**10%**	**3**
Final Report	April 24	**70%**	**4**
Poster Presentation	April/May 27-1	**10%**	**6**

Project Proposal Rubric

This proposal should be written as a formal memo and should logically layout the problem and your approach.

Please include:

An *introduction* with your engineering or science question, the hydrologic variable of interest, and why the work is needed.

A *site and event description* that presents the location of the project area, the size of the project area, and what type of hydrologic response you seek to study.

The *methods* you expect to employ. Some speculation is okay here as we have not covered many of the methods yet. You are expected to elevate your analysis with the use of a model and or GIS analysis. In this section also identify your data needs and potential sources of that data.

The *expected results* describe what you will deliver and define the scope.

A *timeline* and workflow with goals for completion of the project.

A *work plan* that clearly communicates the distribution of labor. Please include calculation and writing reviews in the timeline and work plan.

Format: 1 to 2 page memo, single-spaced, minimum 12 point font and 1 inch margins, include a site map. Remember to cite sources.

Grading (10%)

Category	0	1	2
Engineering question/scientific merit	Missing	Partial	The motivation for the project and stakeholders are identified.
Hydrologic variable of interest and methods			The project approach is clear, possible data sources are identified.
Spatial and temporal scope			Description of the site and timeframe is clear
Timeline/work plan			There is a clear and reasonable timeline
Clarity and Grammar			Few to no errors, comprehension is not affected

Project Draft Rubric

This project should be written as a formal report with the addition of a one-page memo addressing your progress, challenges, and future work for the remainder of the semester. Please be sure to address your proposed timeline and your progress at the time of the update.

Please follow the Final draft formatting and instructions. The *introduction, site description,* and *methods* sections should be fully drafted. The remaining sections may be simply commented as in progress. The more that you have completed the more feedback I can give you.

Grading (10%)

Category	0	1	2
Engineering question/scientific merit	Missing	Partial	The problem/question is well posed and contextually supported
Engineering /scientific methods			Current and rigorous methods are used
Evidence of progress (x2)	(0)	(2)	(4)The team is clearly on track and making strong progress
Clarity and Grammar			Few to no errors, comprehension is not affected

Final Report Guide and Rubric

Required Report Components:

- *Introduction* with your engineering or science question, the hydrologic variable of interest, why the work is needed.
- S*ite and event description* that presents the location of the project area, the size of the project area, and what type of hydrologic response you seek to study.
- *Methods*. Articulate what you did clearly and briefly so that someone could replicate you work. Please put reference materials (tables, iso-maps, etc.) and sample calculations in an appendix described below.
- *Results and discussion:* report and discuss the outcomes of your analysis. This is where you should make meaning of your results and present interpretations of their meaning.
- *Conclusions and/or engineering recommendations:* Summarize the main point of your project and the important findings or design recommendations.
- *Works cited:* cite data sources, site description sources, and technical or scientific literature used.
- *Appendix:* Add any extemporaneous information need to complete calculations and clearly present the methods but unwieldy or too long for the narrative format. Tables and figures should have captions, but no narrative is required.

Formatting:
There is no single format required. I will list some general expectations:

- A title page
- Page numbers
- Captions on all tables and figures
- A use of standard citations
- Intuitive headings for sections and subsections to guide the reader.

Additional formalities (tables of contents, list of table and figures, etc.) may elevate your report but are not necessary.

Grading (70%)

Category	0	5	10
Engineering question/scientific merit	Missing	Partial	The motivation for the project and the stakeholders are identified.
Description of the site and event scope.			Description of site and event time frame are described with sufficient quantitative detail to inform both the engineering/ scientific question and the selected methods
Methods			Methods are reproducible and defensible. Limitations are addressed and the scope and complexity of methods are acceptable to engineering or scientific standards.
Results and discussion			The results are accurately presented from the analysis and the discussion clearly illuminates important finding and addresses uncertainty.
Conclusion			The results are distilled into the actionable or informative conclusions, which are brief and complete. Future work is suggested as is relevant.
Complexity and completeness			The project represents a significant effort, a stretch in intellectual and professional skill, and thorough investigation of the topic.
Clarity and Grammar			Few to no errors, comprehension is not affected

Final poster

Objective: To share your final project in the form of an academic poster. Presentations will be 10-12 minutes with 2-3 minutes for questions. Your main objective is to communicate the story of your work; Why it was important or interesting, how you completed it, and what you learned and/or recommended.

Methods: Posters should be made in power point on a single slide that is 48 in by 36 in. I recommend then printing this slide to a PDF, it uploading to Prezi, and using the zoom animation to guide the audience through your story. Using screen grabs on slides to do the same thing is okay too. Look at this reference for some criteria to consider in building your poster. https://prezi.com/pcovkdvojahz/creating-an-academic-poster/. Please email me the poster as a PDF and the Prezi link an hour prior to the beginning of class for which you are presenting.

Grading: (10%)

Category	0	1	2
Story completeness	Missing	Partial	The poster and presentation present the motivation for the project, the site description, the methods and their importance, and the conclusions.
Scientific grounding			The poster and presentation is well supported by hydrologic analysis, data, and or theory.
Presentation Quality			The speaker(s) have good eye contact, pace, and volume. Appropriate vocabulary and professionalism are displayed.
Visual Composition			The poster provides visual flow and multiple level of engagement. It is not distracting or overstuffed.
Clarity and Grammar			Few to no errors, comprehension is not affected