CE 335 term project specifications

The term project involves doing additional reading and programming on a numerical problem of your choice. Your results should be written in engineering lab report format. You will also give a very short in-class presentation of your topic and main findings.

1 Project topic proposal

You can choose any computational problem that you find of interest, preferably one from engineering. Prepare a 2-3 page proposal that concisely states the problem you want to work on, why it's important or significant (give 2-4 references), and which mathematical models, numerical methods and Matlab functions or capabilities you expect to use. You may be asked to revise or change the topic if it's not suitable or if someone else is already doing it. If you don't hear back within one week, you can consider it approved and go ahead with the first draft.

2 Project format

See also the project grading rubric on the class website. If you have any questions about the expectations, please ask as soon as possible.

Oral presentation (20% of project grade)

Your presentation should be 5 minutes long (no more than 6 slides). It should be structured as follows:

a) Introduction: State the topic and why it's important. (1-2 min)

b) Results: Show 2-3 key figures and explain what they mean in a way that's understandable to the average CE335 student. (2-3 min)

c) Conclusions: What you achieved, what you learned. (1 min)

Written report (80% of project grade)

Your written report should be around 10-15 pages (single spaced) and contain the following sections:

a) Abstract – Summarize what you did and key results in a couple paragraphs. (½ page)

b) Introduction – Concisely describe your problem and how it relates to material we discussed in class. Also include 1-2 applications of your problem to engineering (with at least 3 references to textbooks, technical manuals, or journal articles); if you can't find engineering applications, then provide applications to science or math areas. (1-3 pages)

c) Methods – Describe the algorithms you used to solve the problem (and why you chose them). Include (and justify) any simplifying approximations or assumptions you made in solving the problem. With these approximations, how accurate is the answer to the original problem expected to be? Describe any special difficulties that came up when programming the solution and how you overcame them. (1-3 pages)

d) Results – Include graphics that clearly show your main findings. Provide an estimate of the error in your results (and explain how you estimated the error). (2-4 pages)

e) Conclusions – Summarize how your work solves the problem given and how it might be useful in applications. Comment on possible extensions and improvements. (1 page)

f) Bibliography – List alphabetically all references cited, using ASCE's format. References should be to technical literature, not to popular media or Wikipedia.

g) Appendices, including your computer code.

All material taken from other sources needs to be properly cited in your report. The in-text citations should include author, year, and page number. Put quotation marks around all verbatim quotes. (But if you find yourself quoting or paraphrasing whole sentences, you should probably study the topic so that you can explain it in your own words.)

If you use a program that you didn't write yourself, don't copy it in your report; instead, cite it, and explain concisely in the Methods section what it does and exactly how you used it.

Including anyone else's material in your project without following the above guidelines will likely result in not getting any credit for the project, and possibly other sanctions as per CUNY's policy.

Grammar and spelling matter. Have friends look your drafts over, and get help at the Writing Center.

3 Project submission

Good writing generally requires several rounds of revisiting and editing the ideas that you first put down. After the proposal is approved, a first draft of the written report must be submitted. It should be close to complete, containing all the required sections. I will review your draft and return it with comments so that you can correct any problems.

The due dates for the project components are given in the syllabus. The project grade will be reduced by 10% for missing any of the due dates. Late submission of the final report will result in a 10% deduction per day. Details on exactly how to submit each component will be given in class or via e-mail as the due dates approach.