1 Summary

Technical Memo 1 requires a one-to-two page description of your capstone project problem. Teams should clearly (1) identify their client(s), (2) explain the application problem they will address, and (3) describe why this problem is important to their client.

Post a .pdf copy of their report on Canvas by 12 noon on Thursday 6 September 2018. (Please make one submission per team.)

2 Content of the Problem Statement

Technical Memo 1 should begin with a concise summary section, followed by three main paragraphs. The first paragraph should identify your client. For industrial clients, please give some brief details about the company (e.g., when founded, how many current employees, in which section/division of your company your client resides). For academic clients, give some brief background information on the individual client or the academic division. Ask your coach if you have questions about the expected degree of detail. If you have not yet established contact with your client, please explain that in this paragraph.

The second paragraph should clearly state the main objective of your capstone project. The initial project descriptions you received typically leave problem specifics unclear. Consult with your clients to clarify this uncertainty. Even after such consultations, you will have questions about the scope of the project: this is acceptable at this stage, as the scope will be refined over the next several technical memos, as well as the success of your early mathematical and statistical attacks on the problem. Some problems that appear trivial give stiff resistance; some that seem intractable yield much more readily than you might expect at this stage.

The third paragraph should justify why this problem is important. Who is your client? Why do they care about the problem you are studying? How will your successful project help them? If possible, use specific numbers to explain the relevance of your problem. (Some examples: “Disease $Y$ kills $X$ people in the United states every year.” “The US Federal Government spent $\$X$ to fund research on $Y$ in fiscal year 2016.” “There are $X$ users of the software $Y$ throughout the world.”)

Be sure to cite the sources for the data you use. (The BibTeX system makes it easy to add citations to your LaTeX files. Note that you can copy BibTeX references directly from Google Scholar [scholar.google.com]. When you find a reference you want to cite in Google Scholar, click on the “Cite” link at the bottom of a record. This will bring up a new window containing the citation in a variety of formats. Click on the “BibTeX” link at the bottom of the window to get a BibTeX record that can be copied and pasted into your .bib file.)

A very important point: The problem statement is not about solution methods. This memo should not address mathematical/statistical tools you might eventually use to solve your problem: that
comes later. At this stage, focus on understanding the problem and its context, then communicate that understanding clearly and concisely.

3 Grading Rubric

This memo will be graded on a 100 point scale, according to the following rubric.

- **one paragraph identification of the client:** 20 points
  - Does the team understand basic facts about their client?
  - Has the team contacted their client?

- **one paragraph description of the problem:** 30 points
  - Does the team understand the main goals of the project?

- **one paragraph justification the problem’s importance:** 30 points
  - Why is this problem worth studying/solving?
  - Who cares about this problem?

- **formatting, style, grammar:** 20 points