

CSC2537/STA2555: Research Report Rubrics

Grading item		Weak	Proficient	Mastery
1	Research Question	Research question is absent, trivial (e.g. answer obviously "yes"), or not a question.	There's a promising question, but is not clearly stated.	Clearly stated. Has implications beyond just a simple yes/no answer
2	Hypothesis	Hypothesis same as research question/not present/trivial	Present, but has a simple yes/no answer. Or it's not clearly stated. Or it is too ambitious. Or it isn't clearly motivated (what makes you hypothesize so?)	Hypothesis is clearly stated, is not yes/no answerable, and can be answered in a term project.
3	Theoretical contribution	Not stated	It's hiding in the text somewhere, but isn't clear. Or contribution seems small.	It's a clear, useful, and important contribution.
4	Method	It is unlikely the method can answer your hypothesis/Unstated	Method could work, but is vague (e.g. measures unclear). Or there are obvious better methods.	Method is clearly written. Meaning it is valid, not overly complicated and well thought through. It's a good match for the research question, and can meaningfully address the hypothesis.
5	Risks/Limitations	You don't state them explicitly, and they can't be inferred clearly	You acknowledge risks to your work, but don't say how to mitigate them.	You have explicitly mentioned the risks, and have tried to structure your work to minimize them.

The project abstract should cover the following topics:

- Title
- **Research Question:** What would you like to learn about visualization? The research question section should only contain a one-sentence research question. You are welcome (but definitely not required) to preface this section with a background paragraph.
- **Hypothesis (& Mechanism):** What do you think the answer to your question is? What do you think the causal mechanism is — what's the active ingredient that makes that true? State your hypothesis in terms that you will actually be able to deliver on within the space of a quarter. "We hypothesize that X is the future" is not something you can test in a class. However, having a hunch about the future is wonderful, and you can investigate one aspect as a class project. Another example: having a technology increase someone's income might be your ultimate goal, but you may not be able to measure income change in 12 weeks. Increasing income is a wonderful motivation, but not a hypothesis. Your hypothesis needs a more proximal measure. The hypothesis section should only contain the hypothesis, and the mechanism that explains why.
- **Contribution:** What's a real-world design decision that might plausibly change based on your research findings? What motivates you to explore this issue? What leads you to believe this is a problem/opportunity? What will your work contribute to human-computer interaction? How does it differ from prior work? What is the structure of the space of possibilities that your work explores? What are the major decisions from a design perspective and what are their relative merits?
- **Method:** Explain your research methodology, and study design, illustrate how the study's results will help you learn more about the problem at hand (formative study) and/or provide evidence for/against your hypothesis, and how the question, hypothesis, and studies all line up. We encourage you to mirror/copy/adapt other researchers' methods (**e.g.** by drawing from the class readings) whenever appropriate (and not when it isn't appropriate).

There are three major points you should hit here.

- **Study design:** What are you going to do? Be detailed and precise.
- **Evaluation:** How will you know you succeeded? What will you measure? How will you measure it? What might your results look like?
- **Ecological Validity:** Why does your study answer your research question? Why does your evaluation address your hypothesis? Make sure your study, and the variables you're measuring, properly address the question you are asking.
- **Biggest Risk:** what's the riskiest component of your project? (may not be able to get the hardware you need, robustly implementing the ____ algorithm may take too long, the difference between conditions may not be measurable, ...)