

Suggestions for the Paper Proposals, CSC 508
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The purpose of this proposal is to help organize your thoughts, focus on a "question" you can ask of the research, and find some reasonable sources. Your Professor can give some help and suggestions proportional to the depth and level of detail you achieve at this point.

Here is a bare minimum outline I suggest:

1. Cover page (Title, your name, date, course number, proposed abstract goes here also, see 2.)

2. Abstract (short take on purpose and result. Basic facts, issue, your way to resolve it and mention your result. Keep to one or two short paragraphs. Mary Shaw gives a good definition of an abstract in her paper. This is an important element of your proposal and your paper (it need not be final at this point, needless to say.)

3. General area of your interest for this paper (what is the research issue "in the large" that motivates your research, if the entire thing was solved, what benefit to humankind?) For example, I might state that my general area is "how do engineers avoid legal liability for their work?" This is very general, but I focus in on a small part of the problem either because I must (in order to make progress) or because the research survey points the way to some smaller unsolved problems by itself.

4. Why should anyone care about this area, why is the basic question important? This section should be brief but indicate why anyone would invest time or money in your work.

5. Known facts in your area of research: the survey. This section explains what other "smart" people say about the general problem and solutions. It should exhibit the trends in the research, note the "schools" of thought and show preliminary results (partial solutions). It further allows you, by your own analysis (and sometimes a researcher provides a list), to define the remaining open problems. One (or a subset of one) of these may be yours to work on. You may choose to replicate someone's given solution for some interesting reason. You may look for a counterexample if someone appears wrong. (This is often known as the "survey." It is the current state of the art in your area of interest. Include citations. Use reputable sources. Wikipedia is not such a source.)

This section of the paper is likely to be the major part of the work in this course except for advanced students. As explained, a good "survey" can receive a passing grade for CSC 508.

6. The narrow issue of concern to you: your research question. Keep it short and simple. What is a remaining, unsolved problem that needs attention? It must be narrowly focused and understandable. Your survey, your "story" of research directions and attempts to solve the problem must point to this as a remaining piece of the puzzle, something that will help make "progress" towards a solution. Avoid compound issues!

This is required if you intend to write a "pure" survey, though it could result in a list of issues

remaining for researchers. What remaining issue(s) do you consider the most important, the most likely to be solved quickly, the most interesting? Why?

7. Likely plan of attack: how will you approach your research question? Do you plan to use a survey and statistical models to answer the question? Will you attempt an experiment? Will you use logical analysis to show a contradiction for any solution? Give a loosely detailed process model and plan to implement your approach. Note that you ought not expect to fully develop these plans in CSC 508 (though it has been done!), you may opt to continue in CSC 509 or with Master's work if the question truly keeps your attention :-)

8. Rich annotated bibliography. Annotations are a few sentences of summary of the main points of the source and its relevance to your topic. Include sources you do NOT plan to use as well as the relevant ones: what did you review in researching the question? (Get at least 10 "real" resources – not mere web resources. Wikipedia doesn't count.)

Mechanics of the paper you will eventually produce from this proposal:

40 pages double spaced minimum (yes, I expect this unless you demonstrate to me advanced maturity in writing and analysis.) This page limit does not include title, table of contents, bibliography).

Quality is what I'm after. "Good" quality is about clarity of writing, proper citations (when you state a "known fact" or research result I need to know whether to depend on its basic truth), well structured arguments and counter arguments. Detail tradeoffs, cover weaknesses and strengths of YOUR arguments as well as others.

Originality of analysis is important (this does not mean brand new ideas, it can be a "new" combination of ideas, a "new" insight on commonly discussed ideas and even a "new" application of well known solutions from another domain.)

A mere "report" on the state of research in some area will receive a failing grade. If you plan on a survey only, your creative analytic skills will be shown in how you weave together the various strains of research to expose dead-ends, directions with good potential, better and worse research. It will need to be relatively complete and up-to-date (this is very important in research!)