Expectations for Modeling Project Writeup

You have researched your project and now it is time to write up your results. The most important advice is that your discussion **must focus squarely on your model**. Do not try to fill up your paper with fluff about the greater subject of your project—discuss the intricacies of your model and your decisions for answering your project statement in the way that you have.

(1) Format Specifications
   (a) 15–20 pages long (not including cover page, table of contents, or appendices).
   (b) 1" margins
   (c) Font size 11–12
   (d) Spacing 1.5 times

(2) Cover Page
   (a) Project Title
   (b) Researchers
   (c) Date
   (d) (You may include a picture or relevant figure, if desired.)
   (e) Abstract
      - Consists of **at most** 100 words.
      - Concise description of **project statement**, **method**, and **main findings** of project, and no unnecessary topics.
      - *Write the abstract only after the paper is complete to summarize the "whole picture".*

(3) "Introduction" or "Background"
   (a) This should provide the reader with the necessary background information about why your project is an interesting and worthwhile project, and where the project fits into real life.
   (b) Include any relevant definitions from background knowledge.
   (c) **Explicitly state the project statement.** Make sure it is **completely clear** what you are hoping to answer by completing this project.
   (d) This is a good place for you to discuss your expectations before you started your project. What **did** you think was the most logical answer to your project statement? What logical reasoning led you to guess this?

(4) Section(s) on "Assumptions", "Methodology", and/or "Mathematical Model"
   (a) Discuss which variables you found to be the most important and which you are leaving out of the model.
   (b) Explicitly state any simplifying assumptions that you are making in your research. (Important: These are NOT the expectations that you had for your project. These are the assumptions that you made which makes your model less like real life but easier to understand mathematically.)
   (c) Explicitly explain how you are using mathematics to explain the real-world situation.
   (d) Explain the method of data collection. How did you decide which data to collect and from where? How did you collect your data? Was it difficult to collect the data? Did you use surveys? How did you decide upon questions you asked?
   (e) **How does the model as presented address the Problem Statement?**
   (f) What is involved in solving the problem using the model?
      (i) If you use a method taught in class (*such as function fitting, linear regression, linear optimization, transition matrices, etc.*), you simply need to explain **that you applied** this method.
      (ii) *If you use a method other than those taught in class*, describe this method and explain how one would analyze such a mathematical model.

(Continued on next page.)

(5) Results
   (a) You will use the mathematics we have learned in class to discuss what the math says and what conclusions you can draw in terms of the real-life problem.
   (b) If applicable, include raw data, **especially excerpts that are useful in conveying your point**. (Include entire datasets only in the appendix.)
   (c) Feel free to include graphics to illustrate your results.
   (d) Interpretation: What does it all mean?

(6) Discussion
   (a) Strengths and Weaknesses
      (i) You need to elaborate on your simplifying assumptions and explain what is good and what is bad about your model.
      (ii) How could this model be improved?
   (b) How well does your model do with respect to the aspects presented in Chapter 3 of the text?
   (c) Which mathematical conclusions don't make sense compared to the real-life situation?
   (d) What kind of errors should someone expect from your model?
   (e) Future Research
      (i) What would you have included if you had had more time?
      (ii) What should future researchers investigate?
   (f) Conclusion
      (i) Summarize the whole project once again (similar to abstract)

(7) Appendices
   (a) If appropriate, include copies of surveys, computer programs used, and/or complete data sets.
   (b) Should not include any information crucial to discussion in the main part of project.

(8) "References" or "Bibliography"
   (a) Include any sources you used in the course of your project, including books, web sources, discussions with experts, etc.
   (b) All references mentioned in the project should be properly cited here.
      (i) How to mention references in the text of the project:
      `http://writing.wisc.edu/Handbook/QPA_quoting.html`
      (ii) How to properly cite references in bibliography:
      `http://writing.wisc.edu/Handbook/DocMLAWorksCited.html`
   (c) Any quotes or background research in the paper should be cited in line.
      - *Example.* This is something I learned in a book. (Author name)