BIOEN 498/599 Final Project Report Guidelines

Submit report online through Canvas by June 3, 2016. This is worth 100 points.

Format:

- Font: Times New Roman, Arial, or Cambria
- Font Size: 12 point
- Spacing: Single spaced
- Header or footer on each page (except title page) of group report including: first and last names of each team member, and date
- Margins (top, bottom, left, right): 1"
- Numbering: All pages, except the cover page, should be numbered consecutively in the bottom right hand corner

The report should be 5-7 pages (7-10 if a group of 3 undergraduate or 2 graduate students). This does not count the cover page and large figures, but does count references.

Expected Sections:

Cover page

- Include the title of the project, course name, first and last names of all team members, and date.
- Briefly describe each team member's contributions and roles in the project (1-2 sentences).

Abstract (10 pts)

Provide an overview of the salient points of your project. Suggestions for the abstract include:

- Introduce the problem, technology, or question and its importance and impact.
- What is the goal of this project?
- Outline your group's methods for attempting to solve the problem.
- Outline the results of your project.
- What is the potential impact of your project?

Problem statement and description (10 pts)

- What problem are you or were the developers of this technology addressing?
- Why is this a useful problem to solve? What makes this problem solvable? What is the central goal of this project?

Prior art/Background literature review (10 pts)

- **Briefly** (~1 page) review the other technologies that are attempting to address this question, or other research that ahs attempted to answer this question.
- Why are/were these previous technologies not sufficient? What limitations are there on the previous research?

Design Specifications/Research Methods (25 pts)

Design projects:

- Outline the constraints and criteria you/they used to design this technology.
- Discuss how you determined these constraints and criteria.
- At least some of your constraints should have values for unit of measure, acceptable range values, and ideal values. Examples would be cost of machine and/or reagents and number of bases sequenced per run.

Data analysis projects:

- How did you identify and obtain the data you are using? Why did you choose that data?
- What analytical tools are you using? Why did you choose those to help you answer this specific question?
- What did you need to perform this analysis (is, laptop with 10GB RAM, etc.)?

Solution Description/Results (25 pts)

Design projects:

- Provide an overview of how you arrived at the solution you chose and what other alternatives you considered
- Provide a detailed description of your final solution, including block diagrams or sketches/schematics as appropriate.
- What materials will the design use, why did you choose them, and where will they come from? How often do parts need to be replaced? How does your design work? Include quantitative (numerical) descriptions (specifications) of your solution whenever possible.
- Identification of major issues and potential problems with the design. What problems might you encounter with your design (i.e. aspects of performance, reliability, accuracy, choice of materials, manufacturing issues, distribution challenges, etc.)? How might these problems be addressed?

Data analysis projects:

- Describe what you determined from the data. Provide figures that enable readers to understand your results.

Conclusions (10 pts)

- Describe the conclusions of your data analysis or the value of your design.
- What do you predict the impact of this design or research to be?
- What are the next steps you would take as a designer or researcher in this area?
- What did you learn, technical or non-technical, from this project?

Citations

- Include citations. Any publication style is acceptable. Citing papers as URL links is not. Nor is citing Wikipedia.

Grammar and Writing Style (10pts)

Write for your classmates. It should be good technical writing, but should read well. You may write in a less formal style than for a publication. Avoid passive voice, and identify what you did. Use your spell check and your knowledge of English grammar. Follow the format outlined above.