Term paper and presentaton instructions

Thermodynamics, Spring, 2017

Written report

Each student will prepare a written paper, describing an application of thermodynamics or statistical mechanics. You should choose one research paper that has a "materials and methods" section (or equivalent) giving details of how the modeling was done. You are encouraged to choose a paper relevant to your area of research that describes a non-trivial application of thermodynamics or statistical modeling. Provide a careful analysis that addresses the following points:

1. Give a brief but clear summary of what was done; it is appropriate to include figures or tables taken from the paper you chose. This should be about 2 pages in length. The focus of this analysis should be on the modeling or methods that are used, but you should also describe the context or background involved (*e.g.* experimental results that are being interpreted.)

2. Describe (in your words this time, and a few paragraphs) what was learned, and how this analysis was useful to the overall paper.

3. Provide (again, in one or two paragraphs) a careful analysis of the strengths and weaknesses of the method as used in this example. Were alternatives available? How much effort went into doing the analysis?

4. Write for an audience of your fellow students, making a real effort provide clear explanations of what was done. If the paper you choose assumes an understanding beyond that covered in the course or textbook, you may need to consult earlier papers (and add relevant information to your report).

The total length of your report should be 4-6 pages.The paper is due on **May 1** (the last day of class). Before you start writing, send an email to me, giving information about the paper you have chosen. I will approve of your choice or make suggestions. If you have trouble finding a suitable research paper, or have questions about this choice, please talk to me.

Oral presentation

1. Prepare a 15-20 minute slide presentation on your chosen paper. The presentation should provide background on the scientific context, should describe the methods used, and should explain how thermodynamics or modeling helps one to understand its chemical or biological function. The intended audience is your fellow students, not the instructor: work hard to be clear, to explain unfamiliar concepts, and to serve an educational purpose for the class.

2. You may use or adapt figures from the literature, with proper attribution.

3. Presentations will be given in class on **April 26** and **May 1**. Please let me know if there is any reason you cannot attend class on those days.