Fall 2010 CH 301 Final Random Musings

1. Sadly, the semester has come to an end. Today in class I will have a giant last musings and hope to give a big picture review of thermo that I hope will tie a lot of things together. Also, I will set off a triple thunderstorm.

2. Quiz 6 results. The average of 60% was pretty terrible—you beat last year's class on every exam and quiz this year until this one, and then poof, you fell apart. I do hope that the energy comes back (though violating all kinds of thermodynamics laws) for exam 3 or a lot of you who thought you would be exempt will be taking the final.

3. Evaluations. It is your responsibility as a student to complete course instructor evaluations for every course you take. You should have received an electronic invitation to complete this survey, but if you haven't, you can do so by going to the following web link: https://utdirect.utexas.edu/diia/ecis/ and opening up the survey for CH301. You have until December 3rd (this Friday) to complete the survey. Thanks for remembering to do this.

Things you need to know about Exam 3.

4. In addition to the ChemPortal practice exam, the TAs have provided a practice exam 3 that I have posted in the Assignments link. It is a fairly easy practice quiz and if you can't get it, you will not be ready for the exam on Wednesday.

5. Last night I gave a review on the 30 question types on Exam 3 and the hand written notes from that session are posted on line in the assignment link.

6. Standard help sessions and academic communities will be held throughout the week. My help sessions are in the classrooms through Wednesday and back in my office Thursday.

7. Exam 3 will be given on Wednesday evening from 7:00 till 9:00 pm. The exam will consist of 30 equally weighted questions worth a total of 180 points. The questions are taken from material in Chapters 6 and 7 in the text and resemble in format and content the kinds of questions you saw on quizzes 5 and 6.

8. The 30 exam 3 question types were posted on the random musings link before Thanksgiving but there has been a slight modification that I e-mailed you and can also be found below.

9. I am forgoing a posting of the normal format and procedures for exam 3 and will remind you that everything is pretty much as it was EXCEPT for a change in one of the examination rooms.

Room assignments for the exam are:

WEL 2.224 Last name A through M
UTC 2.112A Last name N through Z

Let Travis know if you have need for alternate testing as we need to be informed in advance. Also remember that I take a zero tolerance view of students who continue to work after the exam ends. Finally, if you miss this exam for any reason other than a university-excused absence, I will simply substitute the percentage score from the final exam.

There will be a make-up exam on Sunday evening in this room from 6 till 8 pm. I will not police who will take this exam, but I would like an approximation of the number of students intending to take the make-up so we can save paper.

10. Some advice as you study for exam 3: Please make sure you can talk the language of thermodynamics in preparing for the test. Can you effortlessly talk about what happens to the state functions during a phase change (heck, do you even know what a state function is?) Can you effortlessly talk about internal energy or spontaneity for common reactions that we have studied? Do you have a sense of the magnitude of the various thermodynamic values we have calculated? Can you distinguish the theories that explain internal energy and entropy in the bulk from statistical thermodynamics which explains things one molecule at a time? In many ways, because the calculations are fairly simple and repetitive, what makes the exam a challenge is not being able to look at and identify the kind of question you are working. I can't force you to do this, but time spent just assigning questions to question types, without actually working the problems, helps you develop an essential skill for test taking.

Things You Need to Know About the Final Exam

11. Final Exam. The final exam is scheduled for Thursday, December 9, from 2 p.m. until 5 p.m. The exam will consist of 60 equally weighted multiple-choice questions taken from Chapters 1 through 7. The time limit for the exam is three hours but you should not be as rushed as on regular exams. As I have mentioned before, there can be no make-up or time changes allowed. However I will allow incompletes in cases where a non-academic issue arises. Please let me know about such issues on your "things I should know" sheet.

12. The final exam locations are in Welch Hall. Please go to the following rooms based on your last name:

Last name A-M in Welch 2.224 and last name N-Z in Welch 1.308

13. The following distribution of questions will be used for the final:

chapter	1	2	3	4	5	6	7
questions	12	8	10	4	6	11	9

The question types for the final exam are posted in the musings at
http://laude.cm.utexas.edu/courses/ch301/musings/rm110410.pdf

14. Review sessions for the final: There can be no regular help sessions during final exam week--those classrooms are now used for final exams. However I enjoy your companionship so much that I will offer review sessions for three days before the final and then hold an office hour to answer questions the day of the final.

- Monday 12/6 WCHogg 1.120 noon to 1 pm QM and Bonding (questions 1 – 20)
- Tuesday 12/7 WCHogg 1.120 noon to 1 pm Gases, Liquids, Solids (questions 21 – 40)
- Wednesday 12/8 WCHogg 1.120 noon to 1 pm Thermodynamics (questions 41-60)
- Thursday 12/9 WCHogg 1.120 noon to 1 pm Office Hour, all questions welcome

Grading: The Cutoffs

15. Here is a master scoring table for people who don't like calculating percentages. Listed below are the current cutoffs for grades in this class done for each of the grading schemes. Note that there are three ways to earn your grades, and depending on whether you did the extra credit, two sets of cutoffs for those three grading schemes. These are the number you should be evaluating as you stare at your Quest test and quiz scores. Don't use Quest's idea of a grade. It is not based on my grading schemes.

	no extra credit submitted			three extra credit submitted—3% reduction		
course grade	exemption (700 points)	cumulative (1000 points)	final (300 points)	exemption (700 points)	cumulative (1000 points)	final (300 points)
A	651	930	279	630	900	270
A-	630	900	270	609	870	261
B+	x	870	261	x	830	249
B	x	830	249	x	800	240
B-	x	800	240	x	770	231
C+	x	770	231	x	730	219
C	x	730	219	x	700	210
C-	x	700	210	x	670	201
D	x	<700	<210	x	<670	<201
F	x	<600	<180	x	<570	<171

Grading: Information on Exemptions.

16. When your score for Exam 3 is posted on Thursday afternoon (or Monday afternoon if you take the make-up), the scores for exams 1-3 and quizzes 1 though 6 should be available to you--this should be enough information to determine exemption unless you have grading errors that have resulted in incomplete Quest scores.

17. I am going to assume you are smart enough to complete all the extra credits--remember that in order to be exempt from the final you must score either 630 (for an A) or 609 (for an A-) points out of 700. The point totals to be used are the three 180 point exams and your four highest of six quizzes (a cumulative score of 700 points). Please don't use all six quizzes in determining your exemption status!!!!

18. If you are exempt, you will receive an A or A- for the course without taking the final. Period.

19. There are a few special circumstances (people adding the course late or missed quizzes for nonacademic reasons) for which I will allow fewer points to be exempt. Please confirm this with me on the "Things I want Dr. Laude to know" gold sheet you complete today.

20. Some of you are concerned that you may miss the exemption by just a few points. It is possible that I will lower the cutoff a bit but I won't know till all the grades are in. I typically have about 180 students earn exemption and that will be true in this class as well. Please don't hassle me about this and contact me only if you believe there was a grading error in determining your exemption status.

Grading: Information for those taking the cumulative final exam.

21. If you are not exempt, you must take the final exam.

22. Don't worry about which grading scheme I will use when you take the final exam. If the final exam for everything gives you a higher score, I will use that. If the cumulative score with the final gives you a better

grade, I will use that instead. Unless you are exempt, there is no grading scheme that doesn't include your final exam score.

23. Don't worry about cutoffs varying from grading scheme to grading scheme. Since I have dropped the exemption cutoff to 87% for an A-, I will be dropping every other grade cutoff by up to 3% as well.

Grading: Final pleas to make my life easier.

24. I took great pains to devise a thorough grading scheme for this course. It is clearly identified in the syllabus. Read it before you start asking redundant questions. It is what it is. Nonetheless, while I don't curve, I also am pretty flexible at the edges of grades and have been known to drop the cutoff by a percentage point here and there. However, when it is done, it is done. Please let me be. I will not do for a single student what I wouldn't do for everyone, so please do not expect special favors.

25. Life is complicated sometimes and many of you may want me to know something about grades and this class. So take the time to fill out the form and return it to me before the end of class today. On it let me know about exceptions I am making for you with respect to grading, whether it be exemption from quizzes or exams. This is the opportunity to let me know about any non-academic issues that might warrant an incomplete or some other form of grade assignment. I will handle each handout retuned to me individually and privately. Look for a return e-mail from me about such matters and respond promptly.

26. By all means contact Travis about grading errors as soon as possible. With about 5,000 grades for a course there are certain to be some errors. Travis will e-mail the class with times next week when she will be available to fix Quest messes. For those of you seeking to be exempt, you need to take care of these things right away. Make sure you bring a regrade request form to Travis so he can easily remedy your concerns. And once grades are posted, if you believe there has been an error, please e-mail me at once—recording the regrades for 500 students is rarely flawless.

27. I have met individually with over 100 of you to discuss how you can improve in this class. Let me encourage you to put your fears aside and fight hard for the grade you want. A good grade on the final is within the grasp of anyone who makes the commitment to obtain it. Fight for it.

28. All joking aside, you have been the best class I have taught and your final grades will reflect this. Based on scores to date (an not breaking down +/- grades) I would guess that the distribution will be something like this:

200 As
180 Bs
80 Cs
30 Ds
20 Fs (most of whom did not complete the course and have dropped by now).

29. A last poetry corner. I'm real big on giving. Here is a thought on Giving from Kahlil Gibran's *The Prophet* Whether you know it now or not, in this life it is best to be known for a generous heart.

Then said a rich man, "Speak to us of Giving."

And he answered:
You give but little when you give of your possessions.
It is when you give of yourself that you truly give.
For what are your possessions but things you keep and guard
for fear you may need them tomorrow?
And tomorrow, what shall tomorrow bring to the overprudent dog
burying bones in the trackless sand as he follows the pilgrims to the holy city?
And what is fear of need but need itself?
Is not dread of thirst when your well is full, thirst that is unquenchable?
There are those who give little of the much that they have; and they give it for recognition and their hidden desire makes their gifts unwholesome.
And there are those who have little and give it all.
These are the believers in life and the bounty of life, and their coffer is never empty.
There are those who give with joy, and that joy is their reward.
And there are those who give with pain, and that pain is their baptism.
And there are those who give and know not pain in giving, nor do they seek joy,
nor give with mindfulness of virtue;
They give as in yonder valley the myrtle breathes its fragrance into space.
Though the hands of such as these God speaks,
and from behind their eyes He smiles upon the earth.

Exam 3 Question Types

Chapter 6

1. Theory: First Law of Thermodynamic
2. Definition: Enthalpy
3. Signs for thermodynamic quantities
4. Definition: state functions
5. Definition: Heats of formation
6. Definition: Heat capacity
7. Calculation: Bomb calorimeter
8. Calculation: Hess' Law and heats of formation
9. Calculation: Hess's Law and combined reaction enthalpies
10. Calculation: Statistical mechanics determination of internal energy
11. Calculation: Bond energies
12. Calculation: Work calculation
13. Definition: Internal Energy
14. Theory: Calorimetry
15. Calculation: Internal Energy calculation (q and w)

Chapter 7

1. Ranking: Predicting entropy change in a chemical reaction
2. Calculation: Entropy change at a phase transition
3. *Theory: Second and Third Law of Thermodynamic*
4. Theory: Statistical thermodynamics and entropy
5. Ranking: Absolute molar entropies
6. Calculation: Statistical thermodynamics, Boltzmann formula calculation
7. *Ranking: Statistical thermodynamics and non-ideality*
8. Calculation of ΔS from heat transfer
9. Calculation of phase transition temperature using the Gibbs equation at equilibrium
10. Calculation involving the second law equation
11. Theory: The temperature dependence of ΔG_{r°
12. Problem: temperature dependence of reaction spontaneity for a chemical reaction
13. *Theory: predicting compound stability from ΔG_{r°*
14. Problem: predicting compound stability from ΔG_{r°
15. Calculation: ΔG_{r° from table values of ΔH_{f° and S_{f°