**CH 302 Random Musings, Bottom of the Ninth**

1. Sadly, the semester has come to an end. Today in class I will briefly look at famous batteries and catalysts, hand out your very own brass penny, make ice cream for 500 people, and review issues related to examinations and final grades.

2. Evaluations. It is your responsibility as a student to complete course instructor evaluations for every course you take. The college is participating in a pilot effort to make these evaluations electronic and I have agreed to use this method. 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 CH302 unique number 53015. You have until 5/ 4/2007 (this Friday) to complete the survey. Thanks for remembering to do this.

2. Reprinted below are the grading cutoffs for the course. There are both the original cutoffs that reflect a 90%, 80%, 70% cutoff and the new cutoffs of 87%, 77%, 67%, 57% and apply IF you turn in all your extra credits. The weight of the extra credit depends on the grading scheme but corresponds to 1% of the grade for each extra credit handed in. Do not worry about which of these grading schemes applies to you. I will assign the one that best benefits you.

| | Exemption scale (700 max) | | Cumulative scale (1000 max) | | Final Exam scale (300 max) | |
|---|---|---|---|---|---|---|
| Letter grade | Old cutoff | New cutoff (3 EC scores) | Old cutoff | New cutoff (3 EC scores) | Old cutoff | New cutoff (3 EC scores) |
| A | 630 | 609 | 900 | 870 | 270 | 261 |
| B | | | 800 | 770 | 240 | 231 |
| C | | | 700 | 670 | 210 | 201 |
| D | | | 600 | 570 | 180 | 171 |

4. Extra credit points. You have had the chance to 3% back on your grade from extra credit. There will certainly be some errors in recording your extra credit what with the manual recording process so please do not panic if points are missing. I will reconcile what I have for your totals versus what you say you have done the green sheet you will turn in today. If there is a contradiction, I will e-mail you to confirm. I need these extra credits to determine exemption, so please get them in as soon as possible.

5. If you are missing HW Service scores or believe that they are in error, it is your job to fill out a regrade request. After this week you will need to e-mail Mazen to discuss the procedure for fixing any errors. We may set up a time for you to come in during dead days if there are a lot of you with grading errors.

6. By Thursday around midnight I will have determined whether the exemption cutoffs will vary from the cutoffs posted above. Remember that the Homework Service totals DO NOT reflect my grading scheme so ignore the grades it assigns and instead simply add up your three exams and your four best quizzes. Compare that result to the appropriate cutoff above or any new cutoff value I assign.

7. You have been a very fine class and the grades will reflect this. Expect to see about 150 exemptions and the final overall grade distribution:

200 As
170 Bs
90 Cs
30 Ds
10 Fs (most of whom did not complete the course).

8. Telling me what I should know. In a class of 500, it is possible I will make mistakes or that I will not find out things you want me to know. So please fill out the green form, "Things I want Dr. Laude to know", if there is anything of an academic or non academic nature that will assist me in deciding your grade. I will respond to each of these individual so take the opportunity seriously. For example, if you and I have made some kind of arrangement about make-ups, missing quizzes, incompletes, or something significant has come up this semester, please write it down and turn it in.

9. A request for EVERYONE about final grades: 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. Be aware that I will not do for a single student what I wouldn't do for everyone, so please do not expect special favors.

**Things you need to know about Exam 3.**

10. Neal has provided a practice exam 3 that I have posted on the web.

11. On Sunday I gave a review on the 30 question types on Exam 3 and the hand written notes from that session are posted on line.

12. Standard help sessions and academic communities will be held throughout the week. My help sessions are in the classrooms.

13. Exam 3 will be given on the last day of class during the regular exam time. The exam will consist of 30 equally weighted questions worth a total of 180 points. I have included an updated list of question types that removes the transition metal material and replaces it with biopolymer questions.

14. I am forgoing a posting of the normal format and procedures for exam 3 and remind you that the usual exam rules apply. Your location for the exam is as follows:

Last name A-K, WEL 2.224.
Last name L-Z , Hogg Auditorium

I do apologize to those of you discomforted by Hogg Auditorium but would like to point out that in all the time I have checked, there has never been a difference in the actual average grade between the two rooms.

16. Some advice as you study for exam 3: Be aware that this test is light on calculations (only about 40% of the test) and heavy memorizing stuff, which is the nature of an exam filled with descriptive chemistry. Like it or not, those of you who really understand my notes on organic nomenclature, biomolecules, main group chemistry, catalysts and batteries, will breeze through this material and it will be a short test. It is definitely a "you know it or you don't" experience for many of these problems. And quiz 5 is definitely a barometer for much of the kinetics and electrochemistry. Nothing will be surprising on the exam.

**Exam 3 Question Types**

Question Types from Electrochemistry
1 relating E, ΔG and K
2 stoichiometry calculation from charge or current
3 calculating cell potentials
4 famous batteries

Question Types for Kinetics
5. assigning rate expressions
6. relating reaction order to rate
7. units of rate constants
8. method of initial rates
9. integrated rate law calculation
10. integrated rate law calculation
11. extracting information from straight line plots
12. kinetic theory—collision
13 kinetic theory—transition state
14. combined Arrhenius calculation
15. reaction mechanisms
16. Ea and potential energy surfaces
17. famous catalysts

Survey of Chapters 14-16 and 18, 19
18. properties and reactivity of alkali metals
19. properties and reactivity of alkali earths
20. properties and reactivity of the B family
21. properties and reactivity of the N family
22. properties and reactivity of the C family
23. properties and reactivity of the O family
24. properties and reactivity of the halogen family
25. famous polymers
26. how to build a biomolecule
27. hydrocarbon nomenclature
28. hydrocarbon reactivity
29. organic functional group nomenclature
30. organic functional group nomenclature

**Things You Need to Know About Exemption**

17. In order to be exempt from the final you must have a cumulative total that is 90% (630 points) of the 700 points derived from 3 exams and your four best quizzes. However I will allow up to 3% extra credit points from 3 extra credit chances so that technically a HW Service score as low as 609 points can be exempt (this number may go down—I will let you know by Friday at midnight.)

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

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

20. It is up to you to make sure that the totals you think you received correspond to exemption. Don't make assumptions. If it is close, or you are confused about the grading, e-mail me. Pity the fool who studies for and take the final exam when he or she was exempt (this happens to someone every year.) Don't let this be you.

**Information for those taking the cumulative final exam.**

21. Final Exam. The final exam is scheduled for Tuesday, May 15 from 9 a.m. until noon. The exam will consist of 60 equally weighted multiple-choice questions that I have listed below. Note the minor change because there is no transition metal material on the exam. 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 green sheet.

22. The final exam locations are in Welch Hall. Please go to the following rooms based on your last name:
Last name L-Z in Welch 2.224 Last name A-K in Welch 1.308

23. Lunches with Dave—review for the final exam: 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 the three days before the final. During each session I will review, by question type, a subject area from the course as it relates to the final exam:

- Thursday 5/10 Welch 3.502 from noon to 1 p.m. Questions from exam 1
- Friday 5/11 Welch 3.502 from noon to 1 p.m. Questions from exam 2
- Monday 5/14 Welch 3.502 from noon to 1 p.m. Questions from exam 3

24. Additional grading information for those taking the final exam:

- Don't worry about which grading scheme I will use. 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.

- Don't worry about cutoffs varying from grading scheme to grading scheme. Across the board I am giving back 3% on every grade cutoff as was described in the

- I will have seen almost 100 people since spring break about doing well on the final. Let me encourage you to do what I have suggested so you can greatly improve your grade for the course. Many of you will see a profound change in how you have been performing in this class—last fall 40 students aced the final after having Cs, Ds and Fs. This could be you.

**60 final exam question types**

Chapter 8

1. Theory: temperature and physical equilibria
2. Theory: dissolving gases, liquids, solids
3. Theory: dissolving gases, liquids, solids
4. Ranking: miscibility of liquids
5. Problem: phase diagram navigation
6. Calculation: ΔH for heating across phases
7. Calculation: vapor pressure in binary system
8. Calculation: Clausius Clapeyron
9. Ranking: Van't Hoff and solution conc.
10. Calculation: colligative property

Chapter 9

11. Setting up K from equilibrium expression
12. Calculation: equilibrium concentrations from K
13. Problem: Reaction direction from Q and K
14. Problem: LeChatelier and reaction direction

Chapter 10,11

15. Temperature dependence of Kw
16. Ranking A/B strength from K values
17. Approximations of A/B equations
18. Simple A/B calculation (strong, weak, buffer)
19. Simple A/B calculation (strong, weak, buffer)
20. Identifying buffers (after neutralization)
21. Buffer neutralization calculation
22. Identifying features of a titration curve
23. Titration strong A/B with strong A/B
24. Titration weak A/B with strong A/B
25. Titration weak A/B with strong A/B
26. Estimating solubility from Ksp values
27. Calculating molar solubility from Ksp
28. Common ion calculation, Ksp
29. Equilibrium expressions for a polyprotic acid
30. Interpreting alpha diagrams
31. Amphiprotic polyprotic acid calculations
32. Equilibrium Calculations: polyprotic acids
33. Mass and charge balance
34. Equilibria Calculations: dilute solutions

Chapter 12

35. relating E, ΔG and K
36. balancing redox equations
37. ranking oxidizing and reducing agents
38. stoichiometry calculation from current
39. interpreting electrochemical cell diagrams
40. cell convention: electrolysis versus voltaic
41. understanding standard reduction potentials
42. calculating cell potentials (not Nernst)
43. calculating cell potentials (Nernst)
44. famous batteries

Chapter 13

45. assigning rate expressions
46. factors affecting reaction rates
47. method of initial rates
48. integrated rate law calculation
49. extracting kinetics info from straight line plots
50. kinetic theory
51. Arrhenius calculation
52. reaction mechanisms
53. Ea and potential energy surfaces
54. famous catalysts

Survey of Chapters 14-16 and 18, 19

55. properties and reactivity of main group elements
56. properties and reactivity of main group elements
57. properties and reactivity of main group elements
58. polymers and biopolymer nomenclature
59. hydrocarbon nomenclature and reactivity
60. organic functional group nomenclature

**25.** And as always, a last poetry corner 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.