

CH302 Random Musings, March 24, 2005

1. Welcome back from Spring Break. I hope all of you had a restful and relaxing experience. The upcoming schedule for the class is pretty intense so it is necessary to get right back into the seeing of things:

- Thursday, March 24: Intro to Electrochemistry and Practice Quiz 4 on Solutions
- Tuesday, March 29: Electrochemistry theory and calculations and Quiz 4 on Solutions
- Thursday, March 31: Advanced Topics in Electrochemistry
- Tuesday, April 5: Exam 2 on Material from Chapters 12, 13, 14 and 21.

2. Quiz 4 is on Tuesday and will cover the material from Chapter 14 on solutions with half the questions on theory of mixing and the other half on colligative properties. I will be giving a practice quiz 4 at the end of class today. The topics for the quiz are:

- ranking colligative properties for various solutions
- colligative property calculation
- colligative property calculation with stoichiometry solution
- colligative property theory (vapor pressure)
- practical application of colligative properties
- theory of gas dissolution in liquids
- theory of salt dissolution in liquids
- ranking miscibility of liquids

3. Exam 2 on April 5 will be worth 180 points and will include 36 questions from the material on electrochemistry and the material on the various phases. I provided a list of the question types in the last random musings before spring break. I will provide a detailed description of exam format and procedure in the next musings, but as you prepare for the exam, be aware that the material on electrochemistry is quite a change of pace from the stuff on gases, liquids and solids, and is often thought to be quite difficult. Moreover, there will not be a great deal of time to learn this new material before the exam. I will be giving three lectures on electrochemistry starting today and ending next Thursday, and then, boom, a test on the material the following Tuesday.

4. The new worksheet 9 on electrochemistry will be posted this weekend and available for you to work next week. I really encourage struggling with it during the help sessions next week. It is the best way to come up to speed on how to work the challenging problems that will be on the exam.

5. With apologies, I will not be at the help session today. I have a doctor's appointment. Laura will be covering for me.

6. As always I want to stress how important it is that you not settle for anything less than an A in this course. Last year about this time I started seeing scores of students individually and we talked about what they could do to improve themselves. It was a lot of work—meeting with 100 students to discuss what they could do to improve study habits and test taking strategies. But it was really rewarding to watch over 90 of them turn Ds and Fs into As and Bs on the final. Please contact my assistant Judy at 471-6176 to set up a time for us to meet. It can really make a difference in your success at UT.

7. Extra credit assignment 1 is due today at noon. I have now been deluged with e-mails on the topic of teaching science to science-haters—about 350 have come in. I have read about 200 of them. Understand that I will rarely be e-mailing you to confirm or comment on what you wrote, and instead a work study student will be happily recording your participation. Don't fret about whether you are getting credit—at the end of the semester when you view your grades, if somehow the credit wasn't posted, just e-mail me and we will fix it.

8. Extra credit assignment 2. For ten points, you must do the following:

- Think deeply about the reasoning behind why the various colligative properties happen (freezing point depression, vapor pressure lowering, boiling point elevation, osmotic pressure.) Then for ONE of these properties, explain the theory behind why it happens. Specifically, the argument made must be a thermodynamic one that involves saying the word entropy several times. So when you write your answer to me, it must include a reference to entropy (or entropic or disorder or other synonyms) to be correct. It should take you a minimum of three or four sentences to do it properly in context.
- The answer to this question is not hard to find. It is in my notes, my course packet, the text book and just about anywhere general chemistry concepts are taught well. However I do not simply want you plagiarizing material. I want you to think through the ideas, put them into your own words, and then write them down. It might be good to practice explaining them out loud to someone. I don't mind if you work together to find the answer. But I do not want you to write an answer word for word from another source. If you do this, it will be considered academic dishonesty and you will be punished.
- Submit your answer with the subject: Colligative Property Extra Credit to dalaude@mail.utexas.edu.
- Start the extra credit answer with your name and your UTEID
- End the extra credit by mentioning your sources for learning the material (the text, the notes, friends, etc.)
- Due date for this extra credit is April 5 at noon.

9. A preposterous response (she swears it is true) to Extra Credit assignment 1:

Well it all began in South Padre Island when our time for spring break was waning. Strictly for educational purposes, I decided to stage an event that would not only teach some people a little chemistry, but it would also humiliate this really mean girl. This rude girl who shall remain nameless, always brags about having huge breasts. This is really annoying especially because my current boyfriend used to date her, and he said that she is full of it because her bras and swimsuits are more like throw pillows. Strictly in the name of science I decided to put my plan into action. She asked me to tie her bathing suit top, but instead of really tying it, I made a really loose bow so it would fall off easily. She expectedly sauntered around the pool and made her way to the diving board to perform a graceful dive. She bounced up and down, and dove into the water. This is where it really gets interesting. Her swimsuit top bubbled up to the surface, and I yelled to an accomplice across the pool, "Look, because of water's strong intermolecular forces, the bathing suit can sit on the water because it is held up by the surface tension of the water. The reason that water has surface tension is because of the hydrogen bonds between the hydrogen atoms and the adjacent oxygen atoms of another water molecule!!! As the embarrassed target surfaced and clutched her bathing suit to her chest, My accomplice returned, "Gee I didn't know chemistry was that interesting or amusing!" Everyone around the crowded pool erupted in laughter, but so did my target. Everyone was laughing except me; she really did have huge breasts.

9. Now back to poetry: one of the most famously challenging poems ever written, and one that is particularly appropriate this time of year to those of a religious bent. It is by my favorite poet, Gerard Manley Hopkins, who lived an absolutely miserable life, and consequently produced some of the greatest poetry ever (though he thought it was awful and never showed it to anyone.) As is usually the case, he did not become famous until he was dead.

The Windhover

I CAUGHT this morning morning's minion, kingdom
of daylight's dauphin, dapple-dawn-drawn Falcon, in his riding
Of the rolling level underneath him steady air, and striding
High there, how he rung upon the rein of a wimpling wing
In his ecstasy! then off, off forth on swing,
As a skate's heel sweeps smooth on a bow-bend: the hurl and gliding
Rebuffed the big wind. My heart in hiding
Stirred for a bird, -- the achieve of; the mastery of the thing!
Brute beauty and valour and act, oh, air, pride, plume, here
Buckle! AND the fire that breaks from thee then, a billion
Times told lovelier, more dangerous, O my chevalier!
No wonder of it: shéer plód makes plough down sillion
Shine, and blue-bleak embers, ah my dear,
Fall, gall themselves, and gash gold-vermilion.

- Gerard Manley Hopkins (1845-1889)

Composed in 1877, Published in 1918