CH301 Random Musings September 29, 2009

1. Quiz 2 results are in and the average was an 87.5 which was pretty great. Do not confuse the difficulty of the exam questions or the amount of time available to complete the exam, with what you have done on quizzes 1 and 2. Exams are a much greater challenge.

2. After a great first quiz effort (with only 12 students messing up their uteids or version numbers) a frightfully large number of you did not fill in your version number or uteid correctly on quiz 2. Please make sure you double check this on the exam. If you do make a mistake, and believe that the score we report for you on Quest is wrong, contact Travis directly with as much info as possible so we can get it fixed.

3. There is a major exam tomorrow night, Wednesday, September 30, from 7:30 till 9:00 pm.

Room locations as follows:

- Last name: A - K Welch 2.224
- Last name L - S Jester A121A
- Last name T - Z W. C. Hogg 1.120

If you go to the wrong room, you will not be allowed to take the exam. The exam is worth 150 points, with 30 5-point multiple choice questions covering material in Chapters 1 and 2. Everything in my course notes from those chapters, as well as the worksheets and practice exams, is fair game. You should use the list of problem types (provided last Tuesday and again today) as your guide for what I will cover. The review on Sunday night produced a question by question description of what I expect—you can find it under my lecture notes link. I believe the video is also available.

4. At the end of the musings you will find specific information about exam procedures and policies. Read it carefully or you may do something unfortunate.

5. Things to think about in preparing for the exam:
   - Don't think you have to know everything in Chapters 1 and 2—simply focus on how to do the kinds of question types that are listed.
   - Know that you know the material. Assume nothing. For example, I will ask you to rank the electromagnetic spectrum, so before the exam, be able to write down the order or say it out loud without assistance. That is how you know that you know this stuff.
   - Don't think that if you did well on the quizzes you will do fine on the exam—the quizzes typically have easier questions, and more important, there was really not a time constraint.
   - Being overconfident is bad. Actually work the problems rather than think you know how to work the problems because you did it once in high school.
   - Time will definitely be a factor on Wednesday for students who don't know the material cold.
   - Don't stay up all night Tuesday night unless you have done it before and know you can handle it

6. Things to think about when you come take the test:
   - Showing up with a working calculator, pencils and picture ID.
   - Use proper hygiene on the day of the exam—many of you will think you don't have time to shower. Think again, the room will smell pretty ripe if you don't.
   - Don't assume your bus will be on time and that the traffic will be good and you know where the exam will be. Give yourself plenty of time so you are not panicked as you arrive.

- Have a time management strategy in mind while you take the exam. You get three minutes per question and cannot afford to labor over the hard questions first—do them at the end only if you have time--all the questions are worth the same amount.

7. Test-taking advice I. As you prepare for this test, keep the following time management idea in mind. There are 30 equally weighted questions and only 90 minutes to finish them. Some questions will take 2 seconds to answer and some will take 5 minutes to answer. As the end of the exam arrives, if you have spent your time working the really long questions (the calculations and complicated Lewis structures, for example) and still have a bunch of quick questions to work, then you are making a big mistake. Get the easy quick questions out of the way first and then struggle at the end with the couple of long calculations questions that you might not finish, but won't cost you as much in the grading.

8. Test Taking Advice II. Memorize the question types. (I said memorize.) The advantages are numerous. Foremost is that this will automatically program into your head the locations where you can put the material you learn so your brain isn't a jumbled mess while you take the exam. In addition to an organized brain, you will now be able to figure out what to study and what not to study. It will also make it possible to define, question by question, exactly what you need to learn.

9. Test Taking Advice III. How you every noticed that you study with a million study aids, but you take a test without any exam aids save a calculator, periodic table and some equations? Try spending some time studying the way you take tests—with nothing in your possession but a pencil, a calculator, a periodic table, and what is in your brain. Find a blank chalk board, or a quiet corner of the library, and see, for each memorized question type, exactly how much you have actually put into your head. If you start this process, and realize nothing is coming out, it is because nothing has gone in. At least then you will know that you are about to crash and burn on the exam.

10. Grading and regrades: Grades will be posted as soon as possible on Thursday. Don't hassle us—if they are not up there is a good reason. Also, please don't e-mail after the exam to say your don't have a test score. Those of you with grading issues should contact Travis with your concern. If you give him enough information, (in particular your actual version number) he will fix your grade in no time and e-mail to confirm. Note, this is THE ONLY WAY WE DO REGRADES.

11. Two pet peeves of mine with respect to the test:

- Test environments are quiet. From the moment you arrive you should be focusing on preparing to take the test and speaking only to the proctors about test-related issues.
- When the test time is over, you will be told to put down your writing implements. That is not the time to start filling in you scantron or bubbling in guesses. If you do so you will be assumed to be cheating and will be treated accordingly.

12. Speaking of cheating, people get caught cheating all the time—happens every year in my class. I have no tolerance for those folks. Sadly, their college careers are going to be much less happy than they once thought, with that permanent stain sitting on their academic records. The professional schools to whom I will send letters in four years will also be sad to hear about issues with integrity. Those of you who get away with cheating elsewhere and intend to try and get away with it on the exam, know this: we have our ways to catch you, and you may get away with a few times, but you will be caught. So short and sweet:

> Don't cheat--it corrupts the integrity of the academic process that you have chosen to make the centerpiece of your existence.

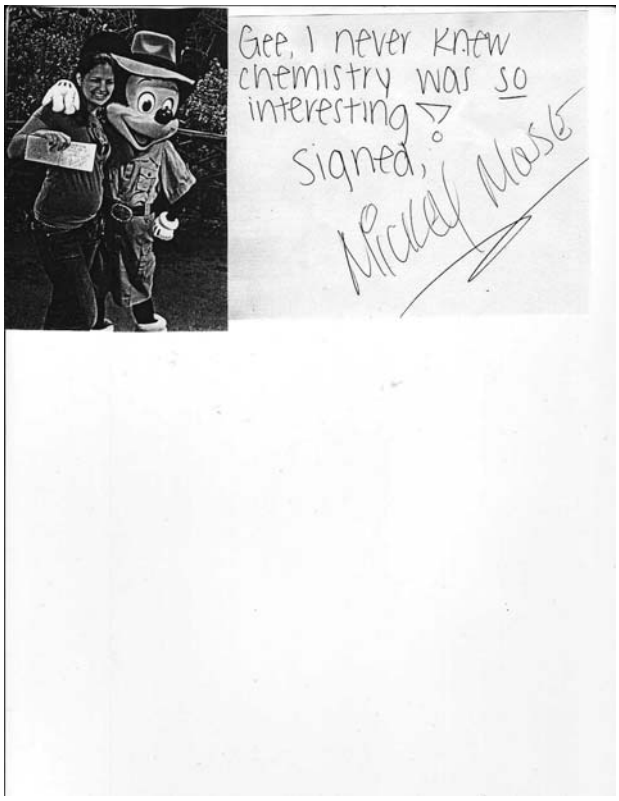
13. After this exam, 25% of your course grade will have been determined. Should you decide to drop the course on the basis of academic performance, I will rubber stamp the Q-drop up until Wednesday, October 7th, at 5 pm. After that Wednesday I will permit a Q-drop without academic penalty only for non-academic reasons that are substantiated by your college. So please decide by that Wednesday about any intention you might have to Q-drop the course. Should you want to speak with me about this, contact me by e-mail.

14. A make-up exam will be held for students who have academic conflicts, official UT conflicts or religious observances. Your one chance to take the make-up will be Sunday, October 4th, from 7:00 till 8:30 in Welch 2.224. You needn't contact me if your excuse is academic (conflicting lab, lecture or exam.) Others who have an extraordinary reason for missing the exam—death in the family, operations, etc, can contact me about using this makeup time but it will be granted sparingly to the really deserving. E-mail to discuss your issues.

15. There are now two practice exams available—the first is one done by the TAs and one that is in the chem. portal.

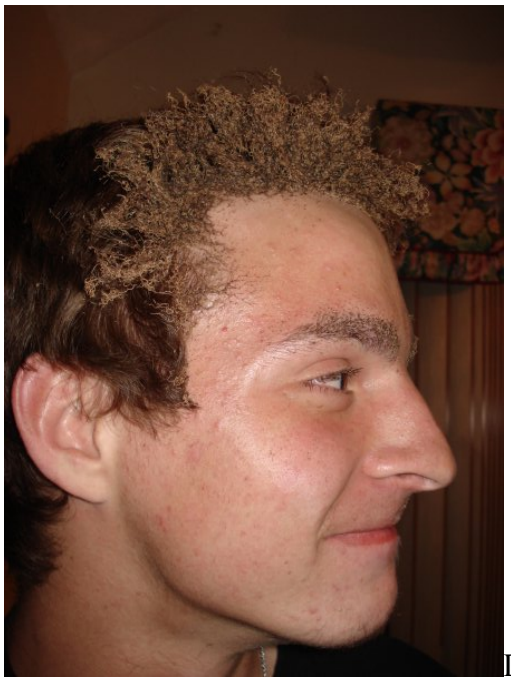
16. We always have fun times after the exam at the next lecture. On Thursday the extra credit challenge between Travis and me, and we will do our first thunderstorm.

17. Picture corner. So sometimes you e-mail me pictures.



Some of you will be wanting to earn extra credit in this course. This will happen over Thanksgiving when you are given the chance to final a science hater, teach them some chemistry, and get them to say "Gee, I never knew chemistry was so interesting, just like Mickey Mouse.

Some of you took me up on my recommendation that you work Lewis dot structures at the football game.

 Don’t try this at home—it may not appear that I am being careful or know what I am doing, but in 30 years of performing demos removed the hair from my head or anyone else’s while exploding a hydrogen balloon. As the saying goes, “don’t try this at home….”

18. Poetry corner. This is what your brain will look like during the test if you don’t memorize the question types before hand and no how to identify them on the exam. So organize, organize, organize as you finish up your exam preparation.

from the cognoscenti e. e. cummings

bingbongwhom chewchoo
laugh dingle nails personally
bung loamhome picpac
obviously scratches tomorrowlobs

wholeagainst you gringlehow

exudes Thursday fasters
by button of whisper sum blinked
he belowtry eye nowbrow

sangsung nee whitermuch grab

sicksilk soak sulksuck whim
poke if inch dimmer twist on
permament and slap tremendous

sorrydaze bog triperight

election who so thumb o'clock

asters miggle dim a ram
flat hombre sin bangaroom
slim guesser goose pin yessir wheel

no sendwisp ben jiffyclaus
bug fainarain wee celibate
amaranth clutch owch

so chuck slop hight evolute

my eerily oh gargle
to jip hug behemoth
truly pseudo yours podia

of rawdarw leschin

And crazy poetry gets written at 3 am—this from a student who evidently has mistaken a d orbital for Travis's visage

I can feel the heat released as he falls to a lower energy level
Behind his scruffy beard lies his bona fide inner devil
My heart sunk when his protons drew her body nearer
The way he explained De Broglie made everything seem clearer
His opponent doesn't stand a chance in the Battle of the Table
With him by my side, my formal charge would be more stable
If he could see me now, I could be the object of his desire
There is room for two wrapped in my Snuggie™ by the fire
His eyes. His passion. His chuckle. He will be mine.
Travis.

…I love you

CH 301 Exam 1 Procedures: Format and Administration
Exam format:

1. A major CH301 exam covering Chapters 1and 2 will be administered Wednesday, September 30 from 7:30 until 9 pm. The exam will be worth 180 points. Exam questions will be generated using Quest which also generated your first two quizzes.

2. Test structure: The exam will consist of 30 questions with each question worth 5 points. Questions are in a multiple-choice format. A breakdown of the problem type is included with these musings.

3. In addition to the problems, you will be provided a scantron, a table of the elements, scratch paper and a list of useful equations(also found in these musings) and constants.

Exam Administration: READ THIS CAREFULLY. IF YOU DO NOT FOLLOW PROCEDURES, YOU MAY NOT BE ALLOWED TO TAKE THE EXAM. The supreme rule for my exams: everyone has the right to an optimum test-taking environment. I am less concerned with cheating than I am with you making life miserable for others taking the exam. All of the rules for this exam are constructed with this in mind.

1. Exam location: There are three locations based on last name. Last Name: Last name: A - K in Welch 2.224;
Last name L - S in Jester A121A; Last name T - Z in W. C. Hogg 1.120

2. Exam start time: 7:30 pm. No one is allowed into the room to take the exam after 7:45 pm.

3. What you may bring to your seat for the exam: number 2 pencils, calculator (I don't care what kind you bring but do not cheat), something to drink.

What you may **not** bring to your seat: anything else including coats, food, back packs, books, paper, MP3s, communication devices like cell phones. If you must bring them to class, place them at the bottom of the class room before the exams begins. You also are not allowed to bring devices that provide wireless connections to external sources.

4. During the exam, the TAs will be available to answer questions. Raise your hand and one of us will come to help you as best we can. Do not leave your seat unless you are finished and are leaving the room.

5. When you leave, do so quietly. AS YOU LEAVE YOU MUST SHOW YOUR UT IDENTIFICATION when you turn in your exam. Make sure your name, version number and ID are bubbled in.

6. Exam finish time 9:00 pm. You will be given fair warning that the exam is about to end so you can start guessing on questions you don't know. I WILL NOT TOLERATE ANYONE WRITING AFTER YOU ARE TOLD TO PUT DOWN YOUR PENCILS. Anyone who is observed to be writing on their exam after the exam ends will be assumed to be cheating and will receive a 0 for the exam and will face additional academic penalties. READ THIS AGAIN IF YOU DON'T UNDERSTAND. I WILL NOT TOLERATE ANYONE ANSWERING QUESTIONS AFTER THE EXAM STOPS AT 9:00 PM.

7. If all goes well the exam scores will posted by noon the next day on Quest—but do not harass us if the grades are delayed—we are getting them up as fast as we can

8. If you have any special considerations please contact me immediately by e-mail so we have documentation and can arrange for your needs. Evening testing makes it more difficult to provide alternate testing facilities and we need to plan for this. Anyone who wants them must e-mail me TONIGHT to verify that a testing location is available.

9. The make-up exam will be given on Sunday October 4th from 7 to 8:30 pm in Welch 2.224. If you cannot take the exam because of a academic schedule conflict, a religious observance or a UT-related trip, let me know immediately so we can arrange a make-up the following Sunday evening.

10. If you miss the exam and make-up, remember that I allow the final exam score to substitute in its place. There will be no make-ups except under extraordinary circumstances.

CH301 Fall 2009 Exam 1 question types

Material from Quiz 1—First half of Chapter 1 on EMR and QM

1. electromagnetic radiation theory and calculation
2. classical theory falls apart (blackbodies, photoelectric effect and atomic emission)
3. Rydberg equation calculation
4. particle in a box theory
5. uncertainty principle theory and calculation
6. deBroglie equation theory and calculation
7. Schrodinger wave equations theory
8. applying quantum number rules
9. applying quantum number rules
10. applying Aufbau, Pauli and Hund

Material from Quiz 2—First half of Chapter 1 on electronic configurations and trends

11. assigning electronic configurations of atoms and ions
12. assigning electronic configurations of atoms and ions (exceptions)
13. assigning electronic configurations of atoms and ions (exceptions)
14. periodic table nomenclature
15. theory of periodic trends: ENC and shielding explain IE, EA, AR, IR, metals
16. ranking periodic trends: IE, EA, AR, IR, metals
17. ranking periodic trends: IE, EA, AR, IR, metals (exceptions)

New materials from Chapter 2 on drawing ionic and covalent Lewis dot structures

18. Lewis structures of ionic compounds
19. Lewis structures of covalent compounds, resonance
20. Lewis structures of covalent compounds, multiple bonds
21. Lewis structures of covalent compounds, multiple central atoms
22. Lewis structures of covalent compounds, multiple central atoms
23. Lewis structures of covalent compounds, exceptions to octet (too large, too small, too odd)
24. Lewis structures of covalent compounds, exceptions to octet (too large, too small, too odd)
25. Lewis structures of covalent compounds, exceptions to octet (too large, too small, too odd)

New material from Chapter 2 on the fundamental scientific models for explaining structure and reactivity

26. ranking crystal lattice energy
27. electronegativity calculation and ranking
28. assigning formal charge
29. formal charge and correct Lewis structures
30. ranking bonding trends: EN, bond energy, bond length

CH301 Exam 1 Help sheet

Constants

1 atm = 1.013×10^5 Pa = 760 torr

C= 4.18 J/g °C (water specific heat)

R = 0.082 L atm/K mol (ideal gas constant)

N = 6.022×10^{23}

K = $^oC + 273$

c = 3.0×10^8 m/s (speed of light)

h = 6.626×10^{-34} Js

h = h/2π = 1.055×10^{-34} Js

$m_e = 9.109 \times 10^{-31}$ kg

$m_p = 1.674 \times 10^{-27}$ kg

R = 3.289×10^{15} Hz (Rydberg equation constant)

$c_2 = 1.44 \times 10^{-2}$ Km (Wien Law constant)

Equations:

$\nu = c/\lambda$

$\Delta E = h\nu$

$1/\lambda = (R/c)(1/n_1^2 - 1/n_2^2)$

$E = (hR)(1/n_1^2 - 1/n_2^2)$

$\nu = R(1/n_1^2 - 1/n_2^2)$

$T\lambda_{max} = c_2/5$

$E = 0.5mv^2 = h\nu - \Phi$

$\lambda = h/mv = h/p$

$2\Delta p\Delta x \geq h_{bar}$

$2m\Delta v\Delta x \geq h_{bar}$

$H\Psi = E\Psi$

$\lambda = 2L/n$

$E_n = n^2h^2/8mL^2$