

## CH302 Random Musings February 17, 2009— Post V-Day special

1. First, my apologies for falling behind on e-mail and postings—a combination of illness, an infected computer and losing internet service has slowed my normal process for posting and responding. I will do my best to catch up but be aware that I have now posted the notes from the Sunday review on my web site under the lecture link.

2. There is a first exam coming up on Wednesday evening. I have provided the question types for it below and had a review on Sunday night. A format and procedure for exam 1 as well as the question types are found at the end of the musings. But some highlights of ways in which the exam procedure may be different than last semester:

- The exam will be Wednesday evening from 7:30 till 9:30 pm. You get 120 minutes, sharp.
- Room locations: Last name A-K will be in Welch 2.224. Last name L-O will be in Welch 3.502. Last name P-Z will be in WCHogg 1.120.
- You will be given a sheet of equations and constants and a periodic table. You may bring a calculator.
- A make-up exam will be given on Sunday evening from 6 to 8:00 pm in Welch 2.224.

### Physical Equilibria

- 1 temperature dependence of phase changes
- 2 vapor pressure theory
- 3 salt dissociation in water
- 4 phase diagram interpretation
- 5 phase diagram navigation
- 6 calculating  $\Delta H$  across phases transitions
- 7 gas solubility in liquids
- 8 ranking miscibility of liquids
- 9 Clausius Clapeyron equation
- 10 Van't Hoff factor and colligative properties
- 11 colligative property application
- 12 colligative property calculation
- 13 colligative property calculation

### Chemical Equilibria

- 14 setting up K from equilibrium expression
- 15 appreciating the magnitudes of K

- 16 calculating equilibrium concentrations from K
- 17 determining reaction direction from Q and K
- 18 LeChatelier and reaction direction
- 19 LeChatelier and reaction direction
- 20 Van't Hoff equation and T dependence of K
- 21 relationship of  $\Delta G$  to K

### Introduction to Water Equilibria

- 22 theory of auto-protolysis of water
23. temperature dependence of  $K_w$
24. molar solubility calculation
25. ranking solubilities based on  $K_{sp}$  values
26. converting between pH, pOH,  $[H^+]$  and  $[OH^-]$
27. ranking acidity and basicity from  $K_a$  and  $K_b$
28. strong acid or base calculation
29. weak acid or base calculation
30. weak acid or base calculation

3. Quiz 2 Results. Travis informs me that you all earned an average score of 70 for Quiz 2. I have not had a chance to look at the question by question break down but will and will get back to those of you who had questions or concerns about the quiz.

4. Travis is going to hold a review session tonight from 6 to 7 in WCHogg 1.120 (the lecture hall right underneath my office.) I hear he gives a pretty good review.

5. Not that you even want to think about it, but Worksheet 6 on buffers, neutralization and titrations will be posted this weekend.

6. Extra credit will be coming—I am already being queried about extra credit. There will be three extra credits for this class, each worth 1% of your grade. Briefly they will include e-mailing me about teaching a science

hater some chemistry over spring break, attending a scholarly lecture in a field that interests you, and attending an undergraduate research poster session. Much more to come.

7. The ChemPortal folks are supposed to have overnighted the \$45 gift cards to me. With any luck I will see them shortly and can return them to the students who purchased a one-semester option for the Portal. Sorry for the delay but I have to imagine I will have these to you next week.

8. Poetry Corner. First three poems that have been written about this class at the interface between Valentine's Day and the exam on equilibrium. After that, the raw aching poetry of science and engineering students in love. Most of them make me squirm with their unabashed sentiment. But I promised so here they come.

### **The Chemistry to Hating Valentine's Day**

Anonymous

*I woke up Valentine's morning, pushed open the door,  
To run to my computer, and check out my score.  
For last Wednesday, I took Dr.Laude's test,  
I was sure I aced it, I did my best.  
But then I saw it, on my computer screen,  
out of 180 points, I scored less than 115!  
I am not too happy, so get the hell out of my way,  
This stupid score, ruined my Valentine's Day!  
I mean, it was multiple choice, How hard could it be?  
I thought at the very most, I'd miss only three.  
But there were some questions a little too raw, like  
"which one is least true of the ideal gas law?"  
You see the word least, could be open to debate,  
but the tests have been graded, so it's probably too late.  
So to end this poem my friends, I have to say,  
That because of chemistry, I truly hate VALENTINE'S  
DAY!*

### **A poem after failing the equilibrium exam**

*At the start of the semester  
about four weeks ago,  
we were all learning chemistry  
extremely, very slow.  
But now that pace has changed,  
and its no longer review,  
for on that last equilibrium test,  
I scored a 122!  
For that one evil, satanic test,  
is one with which I must cope,  
because as far as exempting the final,  
I can kiss goodbye to all my hope.  
And then I thought, "Hey maybe, with  
extra credit  
my grade is saved,"  
then Laude announced to everyone,  
"NO EXTRA CREDIT  
IN YOUR EXEMPTION GRADE!"  
As my smile turned into a frown,  
and my bubble began to burst,  
I thought to myself,*

*"well, it can't get any worse."  
For nothing can be worse than  
taking the final as my only grade,  
and I can't blame Dr. Laude,  
since this grave is one I made.  
The final is around the corner,  
and there are many things to yet be read,  
I won't be able to sleep very much,  
I'll just pass out near my bed.  
So fellow classmates,  
What can you learn from this rhyme?  
Get off your lazy ---- and study,  
You're running out of time!*

### **Ode on CH302**

*Oh Dr. Laude  
how you hate the fall  
and those trips with your daughter  
to be a model at the mall*

*but still you love it  
and your family too  
and all of your students  
in chem 302...*

*you love travis, his ipod,  
and the UGTAs as well  
and especially judy  
boy isnt she just swell*

*but acids and bases  
really make me frown  
and asking if things shift left or right  
when the pressure goes way down*

*so valentines day is a day of love  
for you and your schooling  
but i think "can i get an A?"  
who am i fooling...*

**And now the raw aching poetry of science and engineering students in love**

*For Mary Martha*

***Intermingled Souls***

*Who is worthy for to sing your praise?  
My feeble tongue knows not sufficient words,  
Nor any creature save seraphim may raise  
A song to tell the world of our love.*

*A warm mahog'ny crown my fingers brush,  
And sparkling blue-green stars do mine eyes meet.  
As the softness of your skin receives my touch  
Just so your tender heart does greet my soul.*

*In full embrace I hold it now to me  
That, though we are apart, you feel my warmth;  
And 'til your blissful countenance I see,  
So you hold fast to me my void to bear.*

*Thus it is: our souls intermingled be,  
And so shall stay unto eternity.*

*Sometimes I wish you were mine  
Under your bedroom window I pray  
Someday you'll love me  
And we'll share a home one day.  
Never a day goes by*

*Love with you doesn't cross my mind  
I stare at you every day  
No not that creepy kind  
Now my love has been professed..*

By: Clausius Clapeyron

***Marshmallow Pillow Talk***

*I heard the secret language of the marshmallow  
yesterday;  
I listened to him cry.  
I heard his mating  
Call  
for graham cracker planks and chocolate bar  
sidekick as his  
consistency transformed,  
from a non-tacky rubbery state  
to fused orgasmic sticky bliss.  
Yes, this Rare*

*Event, too, caught me by surprise,  
as I did not know who made that  
sound or why?  
But then everything made sense; the marshmallow  
was lonely no  
more.  
His transmutation takes place not just  
by himself, but with his very subtle call,  
he  
Beckons the shield of cracker  
to help compress  
a Metamorphosis with his chocolate counterpart to  
that of the  
blessed - Smore.  
This sound, this noise  
will catch you off guard  
one day when you ask yourself  
What it may be... But,  
it could be you see,  
the sweet pillow talk of a marshmallow  
not lonely anymore.*

(To: "Silly" Love, your baby)

*Untitled*

*You can't go from hairy ice cream to idiotic circles  
without the kiwi in the middle  
The crazily happy and happily crazy to see you  
-love  
is a simple thing  
A dangerous thing  
Pleasure full and painful  
like repetitively poking at a purpled bruise  
and hearing me laugh.*

*Chance! Fate! but who could love a beast?  
The final petal falls in the grace  
of ultimate peace  
A fairytale ending lives  
in the roots of our dreaming tree  
Where drops of rain shimmer  
beneath the starry sky*

*What is love? The vestigial of questions echoes  
down the corridors of time,  
leaving naught but ambiguities*

*love is putting on pajamas fresh from the dryer,  
running through the grass and feeling green  
between my bare toes*

*(and you following suit thereafter)  
the first hug after a week's vacation  
the white feathered wings of our imagination  
It is the color of light  
and holds no shape  
The warmth that fills the caverns of my being  
Love*

*is smelling your scent while you breathe my  
breath  
Waking up with you as my first thought  
and every night hearing "dream sweet my love"*

*Embedded in our memories and our spirits  
It is the beat of our hearts that will out-tick all  
clocks.*

Those days following in which we spent.  
I hate to say, but those are when I missed you.  
I missed you a lot.  
But days keep passing.  
And with them my feelings.  
But still is left,  
Is remembering that I was happy.  
Those amber eyes  
Reflected things in which you saw in me.  
Even if I, myself, couldn't see.  
That which you thought of me.  
But why can't you see,  
Your life is full, it is full of fantasy.  
Full of Romance and Ecstasy.  
So you cannot forsee.  
But that happiness is found in the black and bleak.  
And chasing this tricky nancy.  
Will end your flight of fancy.

By: Romanticism with a capital R

### *Self-reflection on a Winter's Night*

*She was like night and day.  
A beauty that knew no right or wrong.  
What was her downfall was to be her crown.  
Armed with words that cut through air, and a heavy  
angry mind,  
She never served her proper time.  
Queen of life itself.  
She was my queen.  
My muse that knew only stealth.  
She stole my heart and ate it while I slept.  
So when I woke all I knew was the pit of her gut.*

*And in that gut my heart ate away her soul.  
And in her dreams she drank water from a bowl.  
For not one day did my love for her I doubt,  
and for everyday there on,  
I swear I loved that xxxxx always, or at least until  
the day she xxxxx me out.*

We're taught to think that  
love is beautiful, that it  
transcends our bodies, that it  
heals our souls.

And even though we don't know what this  
"love" thing is,  
we come to associate it with concepts like  
cozy fireplaces on winter nights, like  
holding hands in apple orchards, like  
coming home to a person—  
your person.

But most of all we associate it with a feeling of  
forever. We're told that love is  
everlasting,  
consistent,  
permanent.  
Love is growing old and wrinkly,  
together.

And if you find that kind of love you become  
"one of the lucky ones."  
The ones who have someone to come home to.

More often than not, though, love is  
fleeting,  
transient,  
impermanent.  
It comes and goes like  
waves in the ocean, or  
ripples in fields of grain.  
Sometimes it comes and lasts for mere moments or  
days, or  
weeks, or  
months, or  
years.  
But when it leaves  
(if it leaves)  
you're left wondering if it was ever really there.

It was.

"Do They Collide?"

Darling, you used to take me to a place  
Somewhere that we could go to fade away  
We lie beneath the stars, then, face to face  
Without a care in the world - come what may  
The world revolved, yet time stood still  
Here we, with each and ev'ry twist and bend  
Would sleep and dream, knowing our future's will -  
To stay loving and faithful 'til the end  
Yet now I lie awake, alone and cold  
You held my world, and shattered it bit by bit  
Did it make you feel safe, secure, and bold?  
Or have you in turn been condemned by it?  
Though this beaten heart suffers endless strains  
Forgiveness edges in and love remains  
I wish there was something I could say  
Simple and precise, that I could mean in every way  
The three words mean so much  
And to everyone's heart it does touch  
People use it more than it is meant  
They use it without the usual intent  
You don't just say it to anyone  
But to the only person you will ever love  
When you say it to family or to a friend  
It just doesn't mean the same in the end  
That love is unconditional and is known even without  
words  
You never have to say it, because in their heart it is  
heard  
No, this that I want to say  
Is not the "I love you" as a friend, kind of way  
I mean it from way down deep inside  
Where the things that no one else knows lie  
I have never said this to anyone  
But since I meet you, I knew you were the one  
Basically what I am really trying to say  
Is that I love you, in every single way

*She's everything to me (Heather)*

*Almost two decades ago,  
I came into this world,  
With someone who looked just like me.*

*We've lived the same life,  
We've both held on tight,  
To the one we both know we can't live without*

*My twin  
Who has my same curly hair,  
Is about to go on her own way.  
She doesn't know it,  
And I never show it?  
She's everything to me*

Stacy must have the prettiest hair  
That I've ever seen. It is so fair.  
If you don't believe me, you are a square.  
It would be completely my err  
To believe it looks like a mare,  
And to do that I wouldn't dare  
Whenever I see her all i can do is glare  
Her mother is beautiful to be her heir  
I wish I were pretty; I've resorted to prayer  
She should make it a tourist site and charge fair;  
She would be more famous than Ric Flair!  
One time she cut it, and gave me quite a scare.  
I thought my own eyes out I would tear!  
Some of her leftovers she did share,  
I pasted it to my head as if to wear.  
But it would not stick to me, I swear.  
She doesn't even have underwear!  
Stacy does have the prettiest hair!

*im the groove, you the estella  
you dora, im the explora  
im the soul, you the body  
you the cola, im bacardi :)  
im the music, you the party  
you the song, im the writa  
im the gas you, the ignita  
you the playa, im the game  
im the picture, you the frame  
you the college, im the dorm  
im the rain, you the storm  
you the rose, im the thorn  
im hope, you the forlorn  
you the beat, im the heart  
im the race, you the start  
im the gazer, you the star  
im the tenda, you the bar  
you the book, im the reader  
im the bird you, the feeder  
im the ball you, the roll  
you the crook, my heart you stole*

## CH 302 Exam 1 Procedures: Format and Administration

### Exam format:

1. A major CH302 exam covering the first nine lectures on chemical and physical equilibria will be administered Wednesday, February 17 from 7:30 till 9:30 pm (note the 120 minute length). The exam will be worth 180 points. Only problems similar in content and difficulty to those from quizzes and worksheets will be included on the exam. Many of the problems are more challenging than the quiz questions.
2. Test structure: The exam will consist of 30 questions with each question worth 6 points. Questions are in a multiple-choice format. Look below for an exact breakdown of problem types.
3. In addition to the problems, you will be provided a bubble sheet, a table of the elements, and a list of useful equations and constants. Plenty of space for working problems is provided on the exam. Do not bring your own scratch paper.

**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: Last name A-K will be in Welch 2.224. Last name L-O will be in Welch 3.502. Last name P-Z will be in WCHogg 1.120. If you go to the wrong room, you will not be allowed to take the exam. There is only enough seating for the students as listed above.
2. Exam start time: 7:30 pm. We may decide not to administer the exam to late arrivals if it becomes too disruptive to those taking the exam. Once you start the exam, you may not leave to take the make-up. You must turn in scantron with validated identity.
3. What you may bring to your seat for the exam: number 2 pencils, calculator (I don't care what kind you bring), something to drink. What you may **not** bring to your seat: anything else including coats, food, back packs, books, paper, Walkmans. If you must bring them to class, place them at the bottom of the class room before the exams begins.
4. During the exam, the TAs will be available to answer questions. Raise you 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, special code and SSN are bubbled in.
6. Exam finish time 9:30 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 9:30 PM.**
7. If all goes well the exam scores will be posted by Thursday morning. Please don't hassle us if they are not up right away. We are doing our best.
8. If you have any special considerations please contact me immediately by e-mail so we have documentation.

9. Responsibility. There is an increasing tendency for you to think you can be irresponsible and mommy or daddy will take care of you in class. I am not your daddy. So your decision to show up unprepared for quizzes and exam without sharpened pencils or a calculator is not my problem. I will have some pencils and some calculators available because the lower division office is nice, and I will look after folks whose batteries die. But if the collection of calculators I bring to class runs out, you are on your own. Grow up (he said gently.)