

GENERAL CHEMISTRY B (102)

Instructor: Willetta Greene-Johnson, Ph. D., Room 307 Cudahy Science 773-508-3537

Who am I: A chemical physicist interested in surface optico-physical interactions and mildly interested in (1) thermodynamical (2) unstable systems; (3) pianist, composer, orchestrator, sequencer, producer, and conductor. My vocal ensemble also has recorded three compact discs—plans are in the making for the 2nd half of our current project. One of my songs was doubly tracked on a Grammy award winning choral gospel CD in 2005. The same song treks on a DVD (released April 2008). I'm also getting more orchestral arrangement jobs in the locale. Orchestras rock!

Physical Office Hours : Tuesday 1:30 P – 2:30 P

Email Office Hours (ONLY): Thursday 10:00 A – 11:00 A wgreene@luc.edu

Required: Chemistry & Chemical Reactivity, John C. Kotz, Paul M. Treichel and John Townsend, Thomson/Brooks/Cole, Inc, 1st ed., Mason, Ohio, 2009; ISBN: 978-0-495-79005-1. (The accompanying OWL-CD is NOT required in this section)

Chemistry 102 Course Packet, authored by the instructor. This essential lecture packet is available online at www.universityreaders.com. The course packet will be mailed to you within a few days of ordering, but you'll have immediate online access to the first 10 or so pages once order is completed.

Meetings: Lectures are scheduled MWF in Flanner Hall Auditorium, Room 133, at 12:35 P – 1:25 P. You must also be registered in discussion section 002, 003, or 004.

Discussions: meet on Wednesday afternoons according to the following schedule:

Section	Instructor	Location	Day	Time
002	Dr. Greene-Johnson	DU-529	W	1:40-2:30 P
003	Dr. Sandra Helquist	FH-007	W	1:40-2:30 P
004	Dr. Laura Pytlewski	FH-007	W	2:45-3:35 P



Due to the large number of students that are matriculated through this course yearly, *there can be absolutely no alteration of this schedule.*





Course Description: A study of chemical principles with emphasis on the development of a scientific attitude and an understanding of the fundamental concepts of chemistry. Robust pre-calculus concepts will be particularly emphasized the first ½ of the semester.

Calculators: Any scientific calculator is sufficient, however calculators cannot be shared while exams are in progress and their cases/covers must be removed. Be sure that you are familiar with your calculator and that its batteries are in good condition, especially on the day of exams. The student is responsible for remembering to bring his calculator on an exam day.

Blackboard Connection: The syllabus, homework assignments for the semester, discussions, and solutions to discussions will be posted for the semester at the following website: blackboard@luc.edu, **under coursework**. Solutions to assigned textbook problems will be placed on 2-hour reserve at the Cudahy Library.

Chemistry 102 Tentative Schedule of Topics

Date	Day	Topic	Chapter	Pages
1/20	M	Rate of Reactions	15	670-681
1/22	W	Integrated Rate Law	15	681-691
1/25	F	Rate vs. E_A and Temp.	15	691-701
1/27	W	Rxn mechanisms, catalysis	15	701-711 1 st discussion
1/29	F	Gas phase Equil.	16	724-733
2/1 FEB.	M	Const. K; Equil. Table	16	734-743
2/3	W	Changes that affect K; effect of temp. Le Chateliér's Principle	16	744-751
2/5	F	Acid/Base (A/B)	17	766-771
2/8	M	A/B Extent of Reaction	17	772-777
2/10	W	Categories/Conjugate	17	778-782
2/12	F	Salt solutions \rightarrow A/B	17	783-787
2/15	M	Buffers	18	814-823
2/17	W	Review Ch. 15-17		OPTIONAL-no handout, attend !
2/19	F	Exam 1: Ch.15-17	IN CLASS	Seating: SKIP Every 3rd row!
2/22	M	Titrations SA/SB;SA/WB;SB/WA	18	824-831
2/24	W	K_{sp} and ppt equil'm	18	832-37;843-48
3/26	F	Common Ion Effect,...	18	838-842, then 811-813
3/1 MAR	M	Complex Ions (Lewis Acid/Base)	22 18	1029-1038 789 - 792
3/3	W	Crystal Field Theory	22	1039-1049
3/5	F	Spont. And Temp.	19	860-880
3/8-3/12	M-F	SPRING BREAK	SPRING	BREAK
3/15	M	Gibb's Energy and 2 nd Law: ΔG vs. temp	19	881-884
3/17	W	Review 16, 17,19		optional
3/19	F	EXAM 2: Ch.17 - 18 some 19	IN CLASS	Seating: SKIP Every 3rd row!
3/22	M	ΔG and Equilibrium	19	885-886

Date	Day	Topic	Chapter	Pages
3/24	W	Additivity of entropy ΔS in Rxns	19	See 870-872
3/26	F	Electrochemistry Term., Galvanic Cell E° ,	20	896-903
3/29	M	E_{red}° , E_{ox}° , Spontaneity	20	904-911
MAR. 29 LAST DAY TO WITHDRAW WITH A GRADE OF W				
3/31	W	Work and ΔG	20	912-918
4/1-4/5	Th - M	EASTER BREAK 	Get some Rest! 	
 APRIL				
4/7	W	Graphical Technique	20	In class only
4/9	F	Nernst equation	20	925-929
4/12	M	E° and equil'm const. Batteries, Fuel cells	20	929-931 909-915
4/14	W	REVIEW 19-20		optional
4/16	F	Exam 3: Ch. 19-20	IN CLASS	Seating: SKIP Every 3rd row
4-19	M	Electrolysis; Applications, T Metals	22	932 - 936 selected
4-21	W	Nuclear Reactions	23	1060-1066
4/23	F	Kinetics, Geol. Dating	23	1067-1074
4/26	M	Einstein : mass/energy	23	1075-1082
4/28	W	Fission/fusion	23	1082-1088
4/30	F	TBA		
5/5 MAY	W	REVIEW for FINAL Check emails regularly	10:15-11:30 A	FH-133
5/7	F	FINAL EXAM: Ch. 15-20; 22,23 (14 ?)	9:00-11:00 A	TBA (FH-133 prob)

If we get ahead. we will also study solutions in Ch. 14

Representative Problems, End of Chapter Problems & Discussions:

Students who are making good progress in the course should be able to solve, independently, most or all of the end-of-chapter problems in the text. You should attempt to work out as many example problems and end-of-chapter problems as possible before taking exams. A group of representative problems is listed below as assigned problems. The solution manual with the worked out problems will be kept on reserve in Cudahy Library. A comprehensive review containing additional problems will be posted approximately one week before the midterm exams, which also serves for the final exam.

Discussions count 10% of grade, and should be attended. Discussion problems will be given to be attempted by groups of 3-4 students within the 50-minute discussion. Students must stay the entire period and work on assigned discussion problem(s) to earn up to 10% of grade. The solutions will be posted on blackboard, discussions will be returned by the following discussion, or on Wednesday of the same week if an exam occurs in that week.. The student is strongly encouraged to attempt all suggested problems (text-book and discussion) and contribute significantly to the group discussion activity.

Assigned Exercises:

- Ch. 15, pg. 712:** 3, 7, 9, 11, 13, 14, 17, 21, 23, 25, 27 & 29 (prep for discussion 1), 33, 35, 37, 41, 43, 47, 49, 56, 59 (do you really need to convert to moles?), 65, 73, 81
- Ch. 16, pg. 752:** 1, 3, 7, 11, 13, 19, 21, 23, 25, 29, 35, 37, 39, 41, 43, 45, 47, 55, 57, 59 [% dissociation = $\frac{x}{x_0} \times 100\%$ where x_0 = starting amount], 61, 65
- Ch. 17, pg. 801:** 5, 7, 9, 11, 13, 15, 19, 23, 27, 29, 33, 35(a), 43, 49, ($[H_3O^+] = [H^+]$), 55, 59, 63 (b) & (c), 71, 73, 75, 77, 83, 87, 89, 93, 107
- Ch. 18, pg. 850:** 3, 5, 9, 11, 13, 15, 17, 19, 21 (what happens to the gas?), 23 a&c, 25 a&c, 29, 31, K_{sp} : 33, 37, 39, 43, 45, 47, 49, 53, 55, 61; more titration: 73, 75, 97 abd&e
- Ch. 19, pg. 887:** 1 ab&d, 3, 7, 11, 13, 15, 19, 21, 25, 29, 33, 45, 47, 51, 53, 57, 63, 64, 77, 83, 84
- Ch. 20, pg. 940:** 1, 3, 5, 7, 9, 13, 17, 19 (use reduction table in lecture packet), 21, 23, 27, 31, 33, 37, 41, 45, 59, 61, 63, 67, 85 a & b, **pg 953:** 41, 54
- Ch. 22, pg. 1054:** 1, 5, 7, 9, 11, 13, 15, 19, 23, 25 (orb. diagram of the c. a.!) 29, 41, 43, 45, try: 51, 53
- Ch. 23, pg. 1091:** 11, 13, 17, 19, 21, 23, 27, 29, 31, 35, 37, 39, 45

Ch. 14, pg. 648-653: 1, 3, 7, 9, 11, 13, 19, 21, 27, 29, 33, 37, 39, 43, 47, 59, 61, 67

Academic Honesty: All students are expected to exercise the highest level of academic honesty while taking exams. Each is expected to take time to read the University policy on academic honesty located at

http://www.luc.edu/academics/catalog/undergrad/reg_academicintegrity.shtml .

Grading Scheme:

There are two grading schemes, and whichever one yields the higher grade will be employed after the final has been taken:

If all midterms went fairly well: 20 % midterm, 10% discussion, 30% final

If one midterm not so good: 20% the other two, 10% discussion, 50% final

Grading Scale: *As recommended by the Dean's Office*

Grade Scale:	A	≥ 90	A-	87-89	
B+	84-86	B	80-83	B-	77-79
C+	74-76	C	70-73	C-	67-69
D+	64-66	D	60-63	D-	57-59
F	< 60				

Please note that **the final examination must be taken**. Failure to take the final exam will result in the grade "WF". If a student has missed the final for some valid reason, she/he must present her/his appropriate Dean's office with reasonable proof of illness or accident, verified by a doctor's note, police report, etc., in order to take the make-up final on a single date designated by the Dean's office. There is also a fee. ***There is no guarantee that any coverage indicated for the regular final will apply to the content of the makeup final.*** Failure to follow through on this situation will result in the student automatically receiving an "F" in the course.

Examinations

Three hour exams and the final exam will be given on **Feb. 19, Mar. 19, April. 16, and May 7**, respectively, also noted in the schedule, 90% of your course grade will be determined from these as explained further below. The exams are cumulative, i. e., may include material which has been tested on previous exams. The final exam is cumulative.

Laboratory: Chemistry 112, the general chemistry laboratory course, should be taken concurrently with the lecture course in general chemistry. The lecture and the laboratory courses are graded independently. Students should first consult the Chemistry Department Bulletin opposite the wall facing the chemistry office for information. Then, if they still have unresolved issues, they should contact Dr. Angela Boerger, the administrator of the laboratories.

Flanner Hall-133 Room Instructions on Exam Days

- 1) When you enter the auditorium, **go to the front** and **place** your **book bag** there. **Remove** your **calculator slipcover** and placed it in book bag.
- 2) Starting from the first row nearest the lectern, **sit quickly** in every other seat and **skip every third row**. This vacant third row provides an aisle for the proctor to walk through and address any appropriate questions that student may have during exam. Do not try to sit with friends or near one's usual area. The exam is only **50 minutes**, so excessive delays will cut into exam-taking times.
- 3) **Place your student ID conspicuously** on your desk so that attendance may be noted (during exam).
- 4) Have **several pencils/pens, eraser, etc.** and a **calculator** in good **working** order.
- 5) Proctors have been instructed to **confiscate the exams** of any **student** using a calculator with its slipcover in place or **whose actions are suspect**.
- 6) **Read over the entire exam**. You may find a problem in the middle, or at the end, that suits you better to start. The three or so minutes spent glancing over the entire exam will be more than compensated for by the strategy and priorities that you formulate. The recommended **order to do problems** is:
 - (1) what you **know well** **FIRST**
 - (2) what you're sure you **can at least start** **NEXT**
 - (3) what you **haven't have a clue** **LAST**

I have tried to arrange problems in a reasonable order, but my perception and the student's will certainly differ in some aspects. So, take a few minutes to read over the exam and **devise your own strategy**.
- 7) When you have **concluded**, **turn in your exam** to a proctor. Then **leave** as **quietly** and as expeditiously as possible as to not disturb other exam takers.
- 8) Normally exams administered on Friday will be returned no later than the following Wednesday.

Advanced Studies Recommendation Protocol

Later in your student career, you may require recommendations for graduate school, medical school, or the like. In my case, the following policy is invoked:

1. Student must generally possess GPA of 3.4 or above. However, if my time allows, a student might be considered if she or he presents a **written explanation** that reveals an exceptional circumstance accounting for a lower grade point average.
2. Student must provide a Microsoft Word-formatted document listing his/her official transcript GPA, contact information, deadline(s), and also all chemistry, biology and physics courses and labs that the student has take—in the following format:
 - a. GPA
 - b. reliable, current email and telephone # that student checks *regularly*
 - c. **DEADLINE**
 - d. Table with header: course taken, instructor, grade

Example:

Course	Semester / year	Instructor	Grade
Chemistry 102	Spring/09	Dr. WGJ	B+
Biology 151	Fall/08	Dr. Robert Morgan	A

- e. If applying “outside the Committee”—see items 4, 5 below, a list of all schools of the applicant and **ALL of their DEADLINES**.
 - f. All cover forms, application packages, envelopes in one binder, folder, or otherwise secure containment, with like items paper-clipped together.
3. If I can do a recommendation for you, I’d love to read your personal statements, even in rough draft form. It tells me something about you and helps me to shape a recommendation. This article is not required, but I recommend it.
4. **It is STRONGLY recommended that the student applies through the Loyola Pre-Health Advisory Committee.** The Committee is well regarded by the medical/dental/pharmaceutical community, and its voice of endorsement will be a plus in student’s application process. Also, eventually the student’s personal statement, etc. must be strong, and well written. If the student applies via Committee, s(he) should provide a cover sheet obtained from the Office of Pre-health on the 2nd floor of Damen Hall.
5. If the student who I can recommend elects to apply outside of committee (apart from the Pre-Health Advisory committee), then she/he must email me at wgreene@luc.edu (and at least one other e-address). I will send student a doc file attachment. The student must open this file and type in each school or college address, **creating as many documents as the number of schools to which he/she intends to apply**. The student then must attach those documents and email all the attachments, in one email, to me.

LOYOLA UNIVERSITY CHICAGO SPRING CALENDAR 2010

January 17 (midnight)	Monday	Open registration ends
January 18	Monday	Martin Luther King, Jr., Holiday: No classes
January 19	Tuesday	Spring Semester 2009 begins Late and Change Registration begins Late registration fees apply
January 25	Monday	Late and change registration ends Last day to withdraw without a "W" grade
January 31	Sunday	Last day to drop class(es) with a Bursar credit of 100%
February 1	Monday	Last day to convert from credit to audit or vice versa
February 14	Sunday	Last day to drop class(es) with a Bursar credit of 50%
February 15	Monday	Summer 2009 Registration begins
February 17	Wednesday	Ash Wednesday: Classes meet; Special services
February 21	Sunday	Last day to drop class(es) with a Bursar credit of 20% (zero credit thereafter)
March 1	Monday	Last day for students to submit assignments to change an "I" grade to a letter grade for Fall Semester 2008; Faculty may set earlier deadlines with students
March 3	Wednesday	Early Alert process begins (middle of 7 th week)
March 7	Sunday	Last day to file applications for degrees awarded in December 2009 (Deans' offices)
March 8 - 13	Monday-Saturday	Spring Break: No classes
March 15	Monday	Classes resume after Spring Break
March 29 (5:00 pm)	Monday	Last day to withdraw with a grade of "W" After this date, the penalty grade of "WF" will be assigned
April 1 - 5	Th(4:15) - M(4:15)	Easter Holiday
April 13	Monday	Fall Semester 2009 Registration begins
April 30	Friday	Spring Semester classes end
May 5	Wednesday	Study Day: No classes
May 3 - 11	Monday-Saturday Mon., Tues.	102 Chemistry Final is Friday May 7 from 9:00 A to 11:00 A

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