Chemistry 212-001, Quantitative Analysis Lecture

Summer 2015 Syllabus

Chem 212-001, Quantitative Analysis Lecture (3 credit hours), May 18th through June 26th, 2015
Meets on *Mondays, Wednesdays, & Fridays 12:30 pm – 3:10 pm* in Life Science Building 412 (LSB-412)
*Note, there will NOT be class on Memorial Day, Monday, May 25, 2015.

Prerequisite: Chem 106 or Chem 102 & 112

Instructor: Dr. Katrina Binaku
Office: Flanner Hall 104
Phone: (773) 508-8715
Email: kbinaku@luc.edu When sending emails put Chem 212-001 in the subject line. I try to answer emails as quickly as possible, even on weekends. Any emails after 8:30 pm will likely not be replied to until the following morning. Do respect that email replies may take longer on weekends as I am not at a computer 24/7.

Office Hours: Mondays & Thursdays 4 – 6 pm and by appointments *scheduled* in advance.

Course Objectives/Description:

1) To teach fundamental aspects of acid/base chemistry, redox chemistry, electrochemistry, and ionic equilibria. Basic statistics will also be discussed.
2) To acquaint the student with some of the fundamental techniques and state-of-the-art applications of chemical quantitative analysis used in biomedical, forensic, and environmental chemistry, to name a few.

Use/read the textbook as a supplement to what is covered in the lecture. There is a lot of information at hand. The major points are discussed during lecture; the textbook enhances the material presented. The emphasis of this course is understanding the material, not memorization. Understanding will be achieved through lecture, outside independent review/studying/practice problems, completing Sapling Homework, etc.

Required Materials:

- *Exploring Chemical Analysis*, 5th Edition by Daniel C. Harris (hard copy suggested but e Text ok) ISBN: 1-4292-7503-0
- Sapling Exploring Chemical Analysis 6 months Access Card (purchase online at LUC bookstore, either with or without the e Text, depending on if a hard copy is purchased)
- Inexpensive calculator for logarithmic (base 10 and base e), exponential, trigonometric functions OR a graphing calculator [which will be cleared of storage by Instructor on exam days]. Always make sure calculator has batteries. Calculators *cannot* be shared. Cell phones are NOT calculators and cannot be used as one at any time in the course.
- Notebook paper or a notebook (note taking, sample problems, or in-class discussion problems).
- Sakai will be used to post grades pertaining to the course and other course material (syllabus, instructor information, etc.). Do check Sakai often. If a student is unfamiliar with Sakai, talk with the Instructor the first day of class. Instructor will show class the Sakai site on the first day.

Attendance Policy:
It is expected students attend every scheduled lecture class. Summer school is expensive so get your money's worth! It is also expected students are *on time*. Students are allowed to attend only the section in which they are enrolled. Make-ups exams will not be given. Understanding the demands of summer school and scheduling is the responsibility of the student; so, do not be absent on days of exams. Students are required to initial a sign-in sheet on each day of lecture, documenting and verifying their attendance. This sheet serves as a formal record. If an absence does occur, it is the absent student's responsibility to contact the Instructor promptly.

Blanket statement about "technical difficulties:"
It is *strongly encouraged* that all required online Sapling Homework, opening course/data or other applicable files in Sakai, or other be done on a reliable wired internet connection [not wireless], that of which the University itself provides in the Information Commons and various computer labs on the Lake Shore Campus. Under NO circumstances will excuses of "technical difficulties" be accepted as this syllabus is stating all students should use a wired internet University computer [not wireless internet] to submit work in Sapling Homework online, open course/data or other applicable files, etc. This list is not exhaustive and do note that any activities this course may require a computer or internet connection for should be completed using University computers with wired internet connection. Use of home internet [wired or wireless], University wireless, or public wireless is at your, the student's, own risk. It is not prohibited but as Instructor has stated in this syllabus, Instructor is not responsible for ANY technical difficulties of non-University devices [cell phone, tablet, home/work/public wireless internet or computer]. Do not submit items using a cell phone or a tablet device as these do not count as reliable internet connection tools.

Academic Honesty:
Academic dishonesty in this course will not be tolerated. The Instructor encourages students to converse with each other about chemistry outside of the classroom. Group study sessions as well as practicing end of chapter questions in the textbook with others is appropriate and encouraged. However, the Sapling (online) homework is to be completed individually; it is not group work.

There is a difference between sharing knowledge and cheating. Copying others work and presenting that work as one's own is an example of academic dishonesty. Cheating and plagiarism take many forms. Academic dishonesty during an exam can take many forms, including but not limited to: sharing materials/information with another student during the exam, looking at another student's quiz/exam sheet, talking, sharing a calculator, using a cell phone, using lecture notes, etc. This list is not meant to be exhaustive but highlights several dishonest situations. If it is determined that materials in this course are plagiarized or have been shared between students (current or past), no credit will be given for the work in question. Again, Sapling (online) Homework should be completed as individuals. Cases of suspect academic dishonesty will be handled according to University policy/guidelines. Review Loyola University Chicago's policy on Academic Integrity:
http://www.luc.edu/academics/catalog/undergrad/reg_academicintegrity.shtml

Services for Students with Disabilities (SSWD) Policy:
Necessary accommodations will be made for students with disabilities who procure a SSWD letter. Do discuss your academic needs with the Instructor as soon as possible! However, to receive any accommodations self-disclosure, proper documentation, and registration with the SSWD office at Loyola University Chicago is required. Accommodations cannot be made until the Instructor receives proper documentation. Furthermore, accommodations are not retroactive; they begin only once appropriate

documentation has been received by the Instructor in a timely manner. Only those accommodations specifically listed in the formal SSWD letter will be provided. SSWD Policies and procedures can be found here: http://www.luc.edu/sswd/

Exams:
There will be a total of three one-hour exams given during the semester and a cumulative final exam. Exams begin promptly at 12:30 pm; students who are late to class lose time, as extended exam time for late students is not granted, due to a lecture following exams. Students must take all exams on the assigned dates noted in the syllabus. **No make-up exams will be given under any circumstances**. The lowest grade out of the three one-hour exam grades will be dropped. If you are absent for one of the three one-hour exams, that is the exam grade that will be dropped. The final exam is cumulative. No make-up exams will be granted for the final exam under *any* circumstances! If a student does not show up on final exam day to take the final exam, they receive a grade of zero for the final exam and that grade will not be dropped.

All exams are closed book, closed note unless otherwise specified. Graphing and scientific calculators *are* allowed. However, calculators cannot be shared between students. The cover of the calculator must be removed and not be in plain view. A periodic table will be provided. Cell phones / tablets / computers do NOT count as calculators and cannot be used.

Exam materials *must be handed directly* to the Instructor after completion of an exam. The student will then show their Student ID or Driver's License to the Instructor and sign-in on an attendance form. This signature verifies the student's attendance and completion of the exam. Exams will be graded as soon as possible. Exam student answer sheets will be photocopied. Any discrepancies or questions about grading on any one-hour exams (#1, 2, and 3) must be discussed with the Instructor no later than one week after the graded exam has been returned to the student. After one week of students having a graded exam in their possession, no issues or grading changes will be made on exams. No exceptions.

Exam Dates:	Friday, May 29, 2015	Exam #1, Chapt. 0-6 (one hour, 12:30 – 1:30 pm)
	Wednesday, June 10, 2015	Exam #2, Chapt. 7-11 (one hour, 12:30 – 1:30 pm)
	Friday, June 19, 2015	Exam #3, Chapt. 12,13,16,18-19 (one hour, 12:30 – 1:30 pm)
	Friday, June 26, 2015	Cumulative Final Exam (2 hours, 12:30 – 2:30 pm)

Tutoring: The Tutoring Center at Loyola University offers free tutoring to students! Summer tutoring includes the following subjects: Biology, Chemistry, Math, Physics, and Statistics. To see the complete tutoring schedule and find additional information, visit the Tutoring Center webpage: www.luc.edu/tutoring

Chemistry is a fascinating subject and quite challenging. Summer courses are rigorous in their own right. A conscious, daily effort of studying must be made to master the principles taught in this course. Contact me if persistent troubles arise. Use office hours and the tutoring center to help clarify subject matter or other questions. Work on end of chapter problems in the textbook for practice/study!

Sapling Learning (Online) Homework:

There will be Sapling Learning (online) Homework problems assigned for each chapter covered in this course. *These homework problems are required and are graded*. These are meant to help students practice the material [but by no means are the only 'practice' available as there are problems at the end of the text book]. Late homework submissions via Sapling will not be accepted; so if homework is incomplete and the due date passes, the points earned are zero (0). Students cannot get credit for things that are not completed on-time. Due dates are below and they are non-negotiable; I have assigned due dates to keep students on track in completing the homework problems little by little over the course of the summer session and not all at once [at the end].

Chapters	Due Date (by 11:55 pm / 23:55)
0,1,2	Monday, May 25th
3,4,5	Friday, May 29th
6,8,9	Monday, June 8th
10,11	Monday, June 15th
7,12–14,16	Monday, June 24th
18–23	Friday, June 26th

The "Practice Assignment" in Sapling is 5 points extra credit. It opens May 18, 2015 at 3:10 pm (15:10) and closes May 25, 2015 at 12:30 pm (12:30). After the close time, clearly stated in this syllabus & in Sapling), the extra credit will no longer be available. If a student neglects to complete the extra credit within the above, defined period, that is the fault of the student and no extra credit points will be awarded. No exceptions.

Directions to access Sapling Learning (online) Homework:

1. Go to saplinglearning.com and click on "US Higher Ed" at the top right.
2. If you already have a Sapling Learning account, log in and skip to step 3.
    - If you have a Facebook account, you can use it to quickly create a Sapling Learning account. Click "Create an Account", then "Create my account through Facebook". You will be prompted to log into Facebook if you aren't already. Choose a username and password, then click "Link Account". You can then skip to step 3.
    - Otherwise, click "Create an Account". Supply the requested information and click "Create My Account". Check your email (and spam filter) for a message from Sapling Learning and click on the link provided in that email.
3. Find your course in the list (you may need to expand the Analytical Chemistry subject header and term categories) and click the link for your course.
4. If your course requires a key code, you will be prompted to enter it.
5. If your course requires payment, select a payment option and following the instructions.

- eTEXTBOOK: Your course text is available as a low cost online eTextbook. You can search, highlight, take notes, and each homework question is linked back to the appropriate section in the eTextbook for immediate instructional help. You may purchase the eTextbook in step 5 on the homework payment screen.

Once you have registered and enrolled, you can log in at any time to complete or review your homework assignments. During sign up or throughout the term, if you have any technical problems or grading issues, send an email to support@saplinglearning.com explaining the issue. The Sapling Learning support team is almost always faster and better able to resolve issues than your instructor.

In-class Discussions:
During some of the lectures (~15) there will be a discussion period. Group work between students will be encouraged through the proposing of several questions, each group working on answering 1-2 questions pertaining to the topic at hand. This is a part of class participation; students will turn in their group work on notebook paper with group member names. The calculations/answers will be looked over for "good faith" effort & group members will be awarded 3 points each for the day's work. Absent students, whom are not present to participate, earn a zero (0) out of 3 points for that day's in-class discussion work. The discussion work cannot be made up outside of class time.

Grading Policy:
The established grading policy is subject to change at Instructor discretion. Please note the University uses a +/- grading scale system and it will be implemented in this course. Grades are not rounded.

Grading Category	**Points**
Sapling (online) Homework	**150**
In-class Discussion problems	**45**
Exam #1 (one hour)	**100**
Exam #2 (one hour)	**100**
Exam #3 (one hour)*	**n/a**
Cumulative Final Exam (two hours)	**150**
Total	**545**

*The lowest Exam grade (out of Exam #1, 2, 3) will be dropped. i.e. the best of two one-hour exam grades will count towards the course grade in addition to the other categories listed.

The scale to determine the letter grade earned in the course is as follows:
A 100–93.0%, **A-** 92.9–89.0%, **B+** 88.9–85.0%, **B** 84.9–81.0%, **B-** 80.9–77.0%, **C+** 76.9–73.0%, **C** 72.9–69.0%, **C-** 68.9–66.0%, **D+** 65.9–63.0, **D** 62.9–60.0%, **F** $\leq$ 59.9%

Norms of Course Proceedings:
The classroom is a safe place to question and explore ideas involving chemistry! Student and Instructor voices are important to this work. Feel comfortable asking questions during lecture/discussion, office hours, etc. If disagreements arise with respect to an exercise answer or a topic of discussion, remember to respect fellow peers when proceeding to offer explanations or points of view.

Class sessions will begin and end promptly on time. Students should attend all class sessions and actively participate. Summer courses are intensive and missing even one class will put a student significantly behind in terms of knowledge. If an absence is anticipated, discuss this with the Instructor as soon as possible. Remember, no make-up examinations are offered. There are absolutely no exceptions.

Envision the following for class sessions: class will promptly begin at 12:30 pm, starting with an approximately 50 minute lecture, followed by a 5 minute break, then a 40 or so minute discussion/group work (sample problems, students ask questions, group work on practice problems, etc.), a 5 minute break, and finally a 60 minute lecture. Of course, this plan is not guaranteed and may fluctuate depending on the topic at hand and the pace of the class.

Chem 212-001 Tentative Lecture Schedule (subject to change*)

Date	Chapter	Lecture Topics
5/18	0, 1, 2	Chemical Analysis; Terms; Stoichiometry; Units; Conversions Review
5/20	3, 4	Math Tools; Sig Figs; Errors; Statistics
5/22	4, 5	Statistics contd.; Calibration Curve; Quality Assurance
5/25	N/A	NO CLASS: MEMORIAL DAY!
5/27	6, 8	Titrations; Acids & Bases
5/29	9	**Exam #1 (**Ch. 01,2,3,4,5,6); then Lecture on Buffers
6/1	10	Acid/Base Titrations
6/3	11	Polyprotic Acids and Bases
6/5	7	Gravimetric Analysis
6/8	13	EDTA Titrations
6/10	16	**Exam #2** (Ch. 8,9,10,11,7); then Lecture Redox Titrations
6/12	12	Chemical Equilibrium; Ionic Strength; Activity Coefficients
6/15	14	Electrode Potential
6/17	18, 19	Light; Absorption; Beer's Law; Spectrophotometry; Instrumentation
6/19	20	**Exam #3** (Ch. 13,16,12,18,19); Atomic Spectroscopy; Instrumentation
6/22	21-22	Chromatography; Gas & Liquid Chromatography; Components GC or LC
6/24	22-23	Gas & Liquid Chromatography contd.; Ion Chromatography
6/26	N/A	**Cumulative Final Exam**; Wrap up of thoughts; Last Day of Class!

*This schedule is a general guideline of what to expect during each course lecture. The schedule herein is subject to alteration at the discretion of the Instructor based on the pace of the course.

IDEA (Individual Development and Educational Assessment):
IDEA is the course/instructor evaluation system that Loyola University Chicago utilizes. *Essential* and *Important* objectives have been selected by the Instructor which represent the goals and development to be achieved throughout and as a result of completing the course.

Essential objectives:

3. Learning to apply course material (improve thinking, problem solving, making decisions)
4. Developing specific skills, competencies, and points of view needed by professionals in the field most closely related to this course
11. Learning to *analyze* and *critically evaluate* ideas, arguments, and points of view

Important objectives:

1. Gaining factual knowledge (terminology, classifications, methods, trends)

Towards the end of the semester, an email will be sent to you requesting the completion of the IDEA course/instructor evaluation for Chem 212–001. The objectives will be discussed the first day of class.