CHEM 4000/6000 Lab Syllabus (Spring 2020)

(Monday Session: 1:00 PM – 4:15 PM; Location SA462)

Updates to accommodate the COVID-19 situation *(The information in this section overwrites the previous due dates/requirements if there is conflict/s)***:**

1. The due date for paper # 4 is unaffected. All other upcoming due dates are postponed for at least one-week (*Report #1 final submission due Mar. 30-Apr. 6; Report #2 final submission due Apr. 13; Report #3 final submission due Apr. 20; Report #4 final submission due Apr. 27*). All upcoming submissions will be via email to me. The attachment should be in pdf format.

2. The pre-lab lecture materials can be accessed either from iCollege or from me via email attachment. You will receive your own "data", generated from the project #4 experiments via individual email from me, without doing the titrations by yourself! The data analysis and report writing are unaffected.

3. The online live teaching platform can be subject to the uncertainty of internet speed and other factors. Please refer to the notes being distributed. I will remain online during the first hour of the regular class time in case you have questions.

General Goal: Chemistry 4000/6000 is one of the two WAC (Writing across the Curriculum) and CTW (Critical Thinking through Writing) courses offered in the department of chemistry. The primary goal in the lab course is to learn how to write a scientific paper following the American Chemical Society style while applying the critical thinking skills.

Instructor: Dr. Gangli Wang
Office address: NSC 420
Email: glwang@gsu.edu,
Tel.: 404 413-5507
Office Hour: Monday 4:15 pm after the lab; other time by appointment.

Text: Laboratory Manual for Chem. 4000/6000 (distributed at the first lab meeting)

Required Laboratory Materials:
1) A stitched and bound notebook; ***no spiral notebooks, no tear-out pages***
2) Safety goggles or glasses. You may purchase from the lab coordinator,

Attendance: Students are expected to attend each pre-lab lecture and lab session. Please arrive on time and keep cell phones OFF/muted.

Lab Experiment Schedule:

Unit 1: Error and statistic analysis;

Unit 2: Acid-base titration: standardization of prepared HCl and NaOH solution; determination of the acid mixture composition of HCl + HAc;

Unit 3: Titration of phosphoric acid w/ and w/o Mg^{2+}; the effect of metal ion existence on acid titration (multiple-equilibrium);

Unit 4: EDTA standardization; metal-EDTA complex titration; determination of the metal ion mixture composition.

Grading/Requirements:

- Four papers will be written using real data (your own or your group) obtained in each corresponding laboratory section. The papers will be graded and returned with comments and students will be allowed to re-write, revise and re-submit the paper within one week from the date of paper returned, together with earlier submitted version(s).

- Students will be able to **re-submit** paper #1 twice and paper #2 once. No resubmission is accepted for paper #3 and #4. The score/s from your first submission is very important because it reflects your independent work. The resubmission/s addressing the comments/suggestions could improve the score greatly, but at 80% scale (we encourage independence, critical thinking and beyond!). For example, if one student got 40 pts in an earlier submission and improved to 80 based on the grading criteria, the grade from the resubmission will be 40 + (80-40)*****.8=72 (instead of 80 for those who put in significant efforts to get 80 independently). The highest score is counted as the final grade for each corresponding paper.

- Students are required to write each paper independently, analyze their own data and discuss the outcome accordingly (a group project is ONLY for you to collect data needed). IT IS NOT PERMITTED TO USE OTHER PEOPLE'S DATA ANALYSIS/DISCUSSION IN THE PAPER WITHOUT MENTION. If that happens, it will be considered cheating and zero score will be given on this paper.

- A past-due penalty will be given, 2 pts off for each past-due day.

- Each paper counts **15%** of the final course score (total 100 pts), including the paper writing and notebook check. The total lab score counts **60%** of the final course score.
(No group work. No data sharing. You are responsible for the data acquisition independently. A group project (#4) is considered your own, given specific information is provided in the Experimental section)

Due Date for Each Paper:

#1 (**Feb. 17**); #2 (**Mar. 9**); #3 (**Apr. 13**); #4 (**Apr. 27**).

(Resubmission: about two weeks after the previous submission, if permitted)

Safety Requirement:
- **Safety glass** or **goggles** *must be worn at all times* inside the lab.
- **Dress appropriately**: no open-toe shoes (flip-flops, sandals, crocks, etc.); no very short shorts/skirts.
- **No food, drink, gum,** etc. in the lab.

Chemistry Department Student Integrity Policy:

The Department of Chemistry follows the university policy on academic honesty published in the "Faculty Affairs Handbook" and the "On Campus: The Undergraduate Co-Curricular Affairs Handbook." All tests and quizzes taken and reports submitted must represent the student's individual unaided effort. To receive or offer information during an examination will be considered cheating. Any suspected offenses may be referred to the Department Chair for appropriate action. Classes will never be canceled unless an official from the Chemistry Department gives the class personal notification. Don't assume a note to be enough without checking with the Department office (404-413-5500, PSC 383).

The University requires that faculty members must, on a date after the mid-point of the course to be set by the Provost (or his designee):

1. Give a WF to all those students who are on their rolls but no longer taking the class
2. Report the last day the student attended or turned in an assignment.

Students who are withdrawn may petition the Department Chair for reinstatement into their classes.

Tentative schedule

Week	Dates	Lab	Experiment	Report submission
1	01/13	Check-in	Introduction, Syllabus	
2	01/20	No Lab	MLK day	
	01/27	Experiment-1	Statistical Nature of Data	
3	02/03	Experiment-1	Statistical Nature of Data	
4	02/10	Experiment-2	Proton Transfer Reactions	
5	02/17	Experiment-2	Proton Transfer Reactions	Lab Report #1 Submission 1
6	02/24	Experiment-2	Proton Transfer Reactions	
7	03/02	Experiment-3	Metal-Ligand Reactions	Lab Report #1 Submission 2
8	03/09	Experiment-3	Metal-Ligand Reactions	Lab Report #2 Submission 1
9	03/16	No Lab	Spring Break	
9	03/23	Experiment-4	Analysis for metals by complexation of	Lab Report #1

		(Experiment-3)	metal ions with EDTA	Submission 3
10	03/30	Experiment-4	Analysis for metals by complexation of metal ions with EDTA	Lab Report #2 Submission 2
11	04/06	Experiment-4	Analysis for metals by complexation of metal ions with EDTA	
12	04/13	Experiment-4	Analysis for metals by complexation of metal ions with EDTA	Lab Report #3
13	04/20	Experiment-4	Analysis for metals by complexation of metal ions with EDTA	
14	04/27	Catch-up, Check out	Catch-up	Lab Report #4 Final Submissions