

# Chem 4000/6000 Lab Spring 2019

## FUND OF CHEMICAL ANALYSIS

**Instructor:** Dr. Tarushee Ahuja  
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**Office:** 203 Courtland North  
**Phone:** 404-413-6003  
**Office Hours:** Monday 11-1pm  
(Other time-please email for an appointment)  
**Lab Time:** **Monday** 1.00pm to 4.15 pm, SA 462  
**Text:** GSU Lab manual (will be handed out at first lab lecture). A course outline, schedule of activities, grading, etc., is included in the lab manual.

### 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. Arrive on time. Keep cell phones OFF.

### 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 obtained in each corresponding laboratory section. The papers will be 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 returning, together with old original papers.

- Students will be able to resubmit paper #1 twice and papers #2 once. There is no resubmission for paper #3 and #4. The highest score is counted for each corresponding paper.
- Students are required to write each paper independently, analyzing their own data and discussing accordingly. IT IS NOT PERMITTED TO USE OTHER PEOPLE'S DATA/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.

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(No group work. No sharing data. You are responsible for the data acquisition independently.)

### 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.

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### Tentative Lab schedule

Week	Dates	Lab	Experiment	Report submission
1	01/14	Check-in	Introduction, Syllabus	
2	01/21	No Lab	MLK Holiday	
3	01/28	Experiment-1	Statistical Nature of Data	
4	02/04	Experiment-1	Statistical Nature of Data	
5	02/11	Experiment-2	Proton Transfer Reactions	
6	02/18	Experiment-2	Proton Transfer Reactions	Lab Report #1 Submission 1
7	02/25	Experiment-2	Proton Transfer Reactions	
8	03/04	Experiment-3	Metal-Ligand Reactions	Lab Report #1 Submission 2
9	03/11	Experiment-3	Metal-Ligand Reactions	Lab Report #2 Submission 1
10	03/18	No Lab	Spring Break	
11	03/25	Experiment-4	Analysis for metals by complexation of metal ions with EDTA	Lab Report #1 Submission 3
12	04/01	Experiment-4	Analysis for metals by complexation of metal ions with EDTA	Lab Report #3
13	04/08	Experiment-4	Analysis for metals by complexation of metal ions with EDTA	Lab Report #2 Submission 2
14	04/15	Experiment-4	Analysis for metals by complexation of metal ions with EDTA	
15	04/22	Catch-up, Check out	Catch-up	Lab Report #4
16	04/29		Final Submissions	