

**CHEM 240L: Intro to Bioanalytical Chemistry Lab
Spring 2008**

Required Course Materials:

- Splash-protective goggles such as those used in previous chemistry laboratory courses
- A bound laboratory notebook with machine-numbered pages (no carbon copies necessary)

<i>Instructors:</i>	<u>Office</u>	<u>Phone</u>	<u>TA</u>	<u>Lab Times</u>
Dr. Watson (watsonj@gonzaga.edu)	HU230A	x5929	Novack Timothy	T9:30am-12:20pm T2:10pm-5:00pm
Dr. Smieja (smieja@gonzaga.edu)	HU237	x6630	Reichert Do	R9:30am-12:20pm R2:10pm-5:00pm

Laboratory Policies

Attendance is mandatory. More than two absences will result in a V grade (unofficial withdrawal) for the laboratory. If you miss or must miss a lab for a legitimate reason, speak to your instructor as soon as possible to see if rescheduling is possible. Labs must be completed within the same week as they are assigned and require the permission of the instructor whose section you will be attending.

You are responsible for working safely in the lab. Know the locations of all safety equipment (exits, eyewash, safety shower, fire extinguishers, fire blankets) and be familiar with their use. Splash-protective goggles are mandatory and must be worn at all times in the lab. All waste should be disposed of as indicated by the instructor. NEVER dispose of anything down the sink drain unless specifically instructed to do so.

Laboratory handouts will be available on Blackboard for your section and hard copies will be distributed at the latest one week before the lab will be performed. Post-lab exercises will often be assigned at the end of the handouts. The TAs will check that these are complete at the beginning of the next lab unless a different due date is specified.

Two laboratory exams will be given on dates shown on the schedule. These will take place during the regularly scheduled lab period and cover laboratory techniques, concepts and calculations. These exams are not cumulative.

Leave the first two pages of your laboratory notebook empty for a table of contents and write your name on both the inside and outside of the front cover. Notebook entries must be written in pen and all mistakes crossed out with a single line. Notebooks will be turned in to your lab TA for grading at the end of lab on dates indicated on the schedule. Late notebooks will be penalized 20% of the possible points.

More on Laboratory Notebooks

Each section should be completed in the following order:

a. Experiment Title and Date: The title can be taken directly from the lab handout and the date is the start date of the experiment.

b. Purpose of Experiment: What experimental question are you attempting to answer or study in today's lab? A good purpose statement should include details about how and why an experiment is to be done and, if appropriate, an expected outcome.

c. Physical Properties: If assigned in the lab handout, physical properties for compounds, proteins or other molecules to be used in the lab should be tabulated. Required properties to be tabulated will be listed in the lab handout.

d. Other Pre-lab Assignments: As indicated in the lab handout, these may include calculations, equations, proposed procedures or questions. If required, these will be checked by the TA at the beginning of each lab section.

e. Running Account: Once the lab session begins, you should keep a running account, in past-tense passive voice, of all work performed. This should include:

- Amounts of materials used
- Observations (colors, gas formation, other physical changes)
- Length of time required for procedures
- Data collected, recorded as it is collected
- Important operational details of instruments (recorded once and referenced as necessary)

f. Data Analysis and Results: After the lab is complete, provide a concise summary of results and data. This should not include any speculation or interpretation about the data, which should be saved for the discussion.

g. Discussion: Comment on the data you collected. This may include discussion on such things as: were you successfully able to answer the question posed at the beginning of the lab, the precision and accuracy of the data, explanations of unexpected results, suggestions for how the experiment might be improved.

h. Conclusion: A final short summary of the experiment. The purpose of the experiment should be referenced and the results tied to the purpose.

WEEK	Topic	Notebooks Due?
1/14	NO LABS	No
1/21	Check-in, Take-home Excel assignment	No
1/28	Lab 1: Acids, Bases, Buffers and pH	No
2/4	Lab 2: Acid-base titration	Yes (Lab 1 graded)
2/11	Lab 3: Titration of unknown amino acid	No
2/18	Lab 4: Spectrophotometry	Yes (Labs 2 and 3 graded)
2/25	Lab 5: Determination of manganese and calcium using ICP-OES	Yes (Lab 4 graded)
3/3	LAB EXAM #1	Yes (Lab 5 graded)
3/10	NO LABS (Spring Break)	No
3/17	Lab 6: Electrochemistry	No
3/24	Lab 7: Chromatography	Yes (Lab 6 graded)
3/31	Lab 8: Chromatography	No
4/7	Lab 9: Thermal denaturation of biomolecules	Yes (Labs 7 and 8 graded)
4/14	Lab 10: Enzyme kinetics and inhibition	Yes (Lab 9 graded)
4/21	Lab 11: Protein stability examined by differential scanning calorimetry	Yes (Lab 10 graded)
4/28	LAB EXAM #2	Yes (Lab 11 graded)