**CHEMISTRY 121 LABORATORY**

Fall 2018 Block 3

**Instructor**: Katie Mauger-Sonnek

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(Best way to reach me unless you need an instant response)

**Phone**: cell: 319-239-4761 (both texts and calls are acceptable, nothing after 8:00 pm please)

**Office Hours**: Each lab day after lab, M 11 AM- Noon, W 11-Noon, and by appointment. If necessary, deviations from the listed office hours will be announced.

The main goals of the laboratory portion of this course are as follows:

1. Apply chemical principles in a laboratory setting.
2. Learn and practice effective as well as safe laboratory techniques.
3. Introduce students to analytical techniques.

**General Information**

Labs will meet 2-3 times per week. We will meet for a brief pre-lab discussion in WS 319 and then move to WS 306 for lab. The pre-lab assignment, lab experiment, and blank lab reports will be posted on Moodle ahead of time. You will need to read the lab experiment carefully and work through the pre-lab assignment **before** coming to your assigned lab time. You can expect to be in lab for about 2 ½ hours (8:30 - 11:00 am or 12:30 - 3:00 pm) each session.

**Lab Assignments and Reports**

For most labs, you will have to print out 3 documents: the pre-lab assignment, the lab experiment, and the blank lab report. These will all be posted on Moodle before each lab session.

You will be required to turn in your completed pre-lab assignment at the beginning of the lab session. Your completed lab report will be due at the start of the following lab session.

**Grading**

Your lab grade will compose 20% of your overall course grade. There are 10 lab standards available to pass, with one relating to attendance and participation and the others being directly tied to each lab you complete. You will earn points based on the quality of the work in your pre-lab assignments and lab reports. Each experiment will be graded according to the criteria listed on the experiment grading rubric that is attached. To pass an individual lab standard you need to earn at least 85% of the points possible on the lab.

**Late Policy and Make-up Labs**

To receive full credit for your work, your pre-lab assignment must be received at the start of the corresponding lab, and your lab report must be received by the following lab session. If you have a valid excuse as to why you are unable to complete your pre-lab assignments or lab reports on time, please notify me of this reason as soon as possible; preferably before your lab meets. Make-up labs will not be allowed under ordinary circumstances. Please remember that lack of planning on your part does not constitute an emergency on mine.

**Academic Honesty Policy**

I expect that the work you turn in is your own. I do not mind if you help each other, in fact the lab experience is collaborative by design. However, the work you turn in should be a product of your own effort and not identical to your classmates’. Cheating will result in a zero given for that particular assignment, and further action will be taken if necessary.

**Lab Schedule (Tentative)**

|  |  |
| --- | --- |
| **Date** | **Experiment** |
| 1. Tuesday Oct 23 | Check-In and Safety, “Will it sink or float?” density lab |
| 1. Thursday Oct 25 | “Which one runs out first?” stoichiometry and limiting reagents lab |
| 1. Monday Oct 29 | Solutions Puzzle Lab |
| 1. Wednesday Oct 31 | Calorimetry Lab |
| 1. Thursday Nov 1 | “Why does the can implode?” Gas law lab |
| 1. Monday Nov 5 | Emission spectrum lab |
| 1. Tuesday Nov 6 | Are molecules 3D? Lewis structure and molecular shape lab |
| 1. Thursday Nov 8 | “Can nonmetals be magnetic?” electron configuration lab. |
| 1. Monday Nov 12 | “How do molecules with similar structures behave similarly?” Lewis structure and functional groups lab. |

**Rules of the Laboratory**

1. Safety goggles must be worn at all times by everyone in the lab.

2. Dress appropriately for lab. This includes closed toes and top of foot shoes, at least T-shirt length sleeves, shirts long enough to cover the torso and at least knee length shorts/skirts/pants.

3. Do not bring food, beverages, or empty beverage containers into the lab and do not taste anything in the lab.

4. Never work alone in the lab and never work without the instructor's knowledge and consent.

5. Report all accidents to the lab instructor immediately, any cuts, burns, spills or other injuries.

6. Learn the location and use of the emergency equipment including the fire extinguisher, safety shower, and eyewash fountain.

7. Use only clean glassware. Never assume that glassware is clean unless you were the last person to use it and washed it.

8. Read the labels of all chemicals carefully before you use them. Use only the quantities and concentrations called for in the experiment. Look closely at the hazard labels.

9. Treat any unknown substance as hazardous.

10. Wash your hands if they come into contact with any unknown or hazardous substance. Wash your hands before you leave the lab to avoid contamination of books or food (could lead to accidental ingestion).

11. Keep your lab area clean. Pay particular attention to the area around the balances. Any amount of a spilled chemical, whether solid, liquid, or solution, must be cleaned up immediately and disposed of properly. Ask if you are unsure of the best way to clean up or dispose of a chemical.

12. Place broken glass in the buckets provided for that purpose, not in the regular trashcans.

13. Use a fume hood whenever toxic or irritating gases are likely to be evolved. Never directly inhale vapors.

14. Never pour water into concentrated acid. Always pour the acid slowly into the water while stirring the mixture constantly.

15. Before lighting a flame make sure that there are not any highly flammable substances open in the lab.

16. Never heat mixtures in graduated cylinders. When you are heating a test tube, always point the mouth of the test tube away from yourself and others.

17. Do not contaminate the reagent bottles. Pour some of the reagent into a beaker for your own use when necessary. Do not pour the excess back into the bottle. Do not use a dropper to remove a solution from a reagent bottle unless the dropper is provided with the bottle.

18. Do not remove any chemicals from the lab.

19. Do not perform unauthorized experiments.

20. Inform the lab instructor if you have any medical conditions or learning disabilities that might affect or be affected by your performance in lab.

**Lab Experiment Grading Rubric**

The following is the general rubric I will follow to grade your lab assignments. Each experiment may have a different total number of points depending on which sections are included in the handout.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Meets Expectation** | **Partially Meets Expectation** | **Does Not Meet Expectation** |
| **Lab Attendance** | **2 pts**  On time for pre-lab discussion | **1 pt**  Late to lab or miss pre-lab discussion | **0 pts**  Not present in lab |
| **Title, Name, Date** | **2 pts**  All of these are present on your pre-lab and lab report | **1 point**  Missing from either pre-lab or lab report | **0 pts**  Missing from all lab assignments |
| **Pre-Lab Assignment** | **Each question is worth 1 pt.**  Answer is complete AND correct = **1 pt**  Answer is incomplete OR incorrect= **0 pts** | | |
| **Procedure/Observations** | **12 pts**  All procedure steps are included and well organized.  Detailed observations are recorded for most steps of the procedure. | **6 pts**  Some procedure information is included, but it is not well organized or complete.  Few observations are recorded or observations are vague. | **0 pts.**  No procedure information is included.  No observations are recorded. |
| **In-Lab Report Questions** | **Each question is worth 1 pt.**  Answer is complete AND correct = **1 pt**  Answer is incomplete OR incorrect = **0 pts.** | | |
| **Post-Experiment Questions** | Each question is worth **1 pt.**  Answer is complete AND correct =**1 pt**  Answer is incomplete OR incorrect = **0 pts** | | |