

## ESM 231L: Fundamentals of Environmental Chemistry Laboratory Section Winter 2016

**Instructor:** Jacinda Mainord (Tuesdays) and Brian McGann (Thursday and Friday)

**Jacinda's Office Hours:** Wednesday 3-4PM SRTC 463

**Brian's Office Hours:** Thursday 2-3, Friday 11-12 SB1 - 105

**Professor George Office Hours:** Wednesday 10-11 AM

**Contact Info:** [jmainord@pdx.edu](mailto:jmainord@pdx.edu), [bmcgann@pdx.edu](mailto:bmcgann@pdx.edu)

### Course Description:

This laboratory section will supplement the concepts covered in ESM-231 lecture by Professor George. Students will participate in laboratory through taking quizzes, working on experiments, and writing lab reports throughout the 10 weeks of class.

### Grading:

Pre-lab quizzes: 7 @ 10 pts

Lab write ups: 8 @ 15

Total for Laboratory: 190 points

### Tentative Schedule

Week 1	Lab 1: Recognize Chemical Hazards
Week 2	Lab 14: Molecular Models of Organic Compounds
Week 3	Lab 10: pH of Common Substances
Week 4	Lab 12: Determination of Hardness of Water
Week 5	Lab 21: Determination of Chloride in Seawater
Week 6	Make up
Week 7	Palmer Tubes NO <sub>2</sub> lab – prepare
Week 8	Soil pH
Week 9	Palmer Tube – analyze
Week 10	Cation Exchange Capacity Lab

**Campus Safety:** The University considers student safety paramount. The Campus Public Safety Office is open 24 hours a day to assist with personal safety, crime prevention and security escort services. Call [503-725-4407](tel:503-725-4407) for more information. For Campus emergencies call [503-725-4404](tel:503-725-4404).

### General Lab Rules:

- Goggles are required in *working areas* of the laboratory at all times. Other people's work, as well as your own, can accidentally splatter and blind you. Please do not wear contact lenses, as the capillary action will hold chemicals against the eye and cause serious difficulty in washing your eyes. Goggles may be removed in designated '*non-working*' areas of the lab – do not bring chemicals into these areas.
- If you get a chemical in your eye, you must wash it IMMEDIATELY. Familiarize yourself with the eye wash station and know how to use it before you need it - you may only have a few seconds before you are permanently blinded.
- In the event that a large amount of strong acid or base is spilled on you, get to a shower within 15 seconds. Where is the safety shower?
- There are fire extinguishers in the lab. Put out small fires with a towel, a book, or anything that will not easily catch fire.

- Shoes must completely cover the foot. You will not be allowed to work in the lab if you wear sandals or flip-flops even if you are wearing socks.
- Clothing must reach from the shoulders to the feet. No shorts or halter-tops.
- Any questions about lab safety should be directed to your instructor.

**Before you can work in the laboratory, you must read and understand the rules below:**

1. Do not work in the laboratory unless your instructor is present to supervise your work.
2. Do not carry out any unauthorized experiments.
3. Do not work in a manner that is unsafe to you or those around you.
4. Wear appropriate eye protection AT ALL TIMES in the working areas of the lab.
5. Contact lenses may not be worn in the lab.
6. Do not work with any chemical above or near your face.
7. Do not taste, smell, or ingest any chemical in the laboratory. For the same reason, you **cannot bring food or drink into the laboratory** (no chewing gum, tobacco, candy, coffee, etc.)
8. If you are directed to perform an odor test on a sample, use the motion of your hand to waft the vapor to your nose.
9. Never pipet by mouth.
10. Never pipet directly from a reagent bottle.
11. Avoid skin contact with chemicals – Wear gloves.
12. Do not wear gloves outside of the laboratory.
13. Fume hoods must be used when toxic or corrosive vapors are released during the work you are performing.
14. Do not add water to a concentrated reagent, especially sulfuric acid and sodium hydroxide. Add the reagent to water.
15. All broken laboratory glassware must be placed in a special glass disposal box.
16. Bare feet, sandals, shorts, short skirts and short shirts are unsafe and must not be worn in the lab. For fire safety, loose clothes and ties should not be worn and long hair should be tied back.
17. Only neutral aqueous solutions can go down the drain. Waste determinations and disposal are performed by the instructor and staff – check with them before disposing of any chemical.
18. Wash your hands and wipe down your work bench with a wet sponge after completing your experiments.
19. Do not take any chemical out of the laboratory for any reason. It is illegal and you may be liable if another person is injured by anything you remove from the laboratory.

**In case of an accident:**

- If a chemical splashes into your eye, GET HELP IMMEDIATELY. Shout out 'I have a chemical in my eye!'
- If someone near you gets a chemical in his/her eye YOU should: Shout for help from the instructor and provide help if the instructor is not immediately there.
- Wash eyes thoroughly with a stream of water from the wash fountain or closest sink if necessary. Hold the affected eyelid open.
- If any chemical comes in contact with you skin it should be washed off with a stream of water right away.
- Know the exit route from your lab in case of a large solvent spill, fire, or other emergency.
- Immediately report ANY accident to your instructor, no matter how minor it may seem.
- You are advised to have private health insurance. In the case of minor cuts or burns an instructor or staff member may escort you to the Student Health and Counseling Center. In serious cases 911 will be called.