

## **GEOG 3705 Wetland Studies Laboratory**

### ***Instructors:***

Dr. Weihong Wang  
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**Office Hours:** W 10:00 – 11:50 am

Dr. Eddy Cadet  
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### ***Lab Time and Location:***

Time: 11:30-2:15 pm on Thursdays  
Location: SB 034

### ***Prerequisite(s):***

GEO 1010 OR ENVT 1110 OR BIOL 1010 OR CHEM 1210 OR Instructor Approval; and University Advanced Standing

### ***Text/References:***

Biogeochemistry of Wetlands, Reddy, K.R. and DeLaune, R.D.2008. ISBN: 9781566706780  
**Optional**

### ***Description:***

Designed to be taken in conjunction with GEOG 3700. Applies techniques for sampling and mapping of wetland soils, plants, water, etc. and analyzes chemistry of wetland samples using modern instrumentation to address outstanding scientific questions related to wetlands. Addresses skills to interpret and present scientific data.

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### ***Objectives:***

Upon successful completion, students should be able to demonstrate understanding of lab safety procedures, demonstrate understanding of plant and soil sample collection procedures in wetland, prepare soil, fish and plant samples for analysis, use the Microwave Accelerated Reaction System, analytical balance, and perform filtration procedures used to process samples prior to analysis, analyze pH and determine particle size distribution of wetland soils, operate the Inductively Coupled Plasma during sample analysis, demonstrate understanding of quality control procedures to ascertain accuracy and precision of data, and analyze, interpret and present sample results. In addition, during the semester students will gradually develop the appreciation of the importance of analytical analysis, awareness of the importance of instrumentation, and recognition of the value of wetland ecosystems.

### ***Lab Policy:***

- **Your safety** is always the priority. Thoughtless behavior, violations of the laboratory or chemical guidelines would not be tolerated.
- Please familiarize with the location, use and limitations of the following safety devices:  
**Eye Wash Station, Spill Cleanup Materials, First Aid Kit, Fire Alarm, Fire Extinguisher**
- Wear safety glasses or goggles, laboratory coat, and appropriate gloves in the laboratory as needed.
- No open toed shoes are allowed in the laboratory.
- Wash hands before leaving the laboratory.
- No food or drink is allowed in laboratories or areas where chemicals are used or stored.
- A variety of equipment may be used for different activities. Most of the equipment is delicate, sensitive and expensive. Before you use any equipment you must learn about its operation and its safety implications. Misuse of equipment can lead to injury delay in project work and substantial cost in repair bill.
- Be alert to unsafe conditions of the equipment, procedures and actions, and call attention to them so that corrections can be made as soon as possible.

### ***Student Assessment Activities and Grading:***

10%	Project Presentation
20%	Project Design
20%	Analytical Skills
20%	Homework
30%	Lab Activities

<u>Average</u>	<u>Grade</u>	<u>Demonstrated Understanding</u>
93.5-100%	A	<i>mastery</i> of the learning objectives
90-93.5%	A-	
87-90%	B+	<i>functional understanding</i> of the learning objectives
83.5-87%	B	
80-83.5%	B-	
77-80%	C+	
73.5-77%	C	<i>basic achievement</i> of learning objectives
70-73.5%	C-	
67-70%	D+	met some learning objectives, but <i>significant deficits</i>
63.5-67%	D	
60-63.5%	D-	<i>Did not demonstrate understanding of most learning objectives</i>
0-60%	E	

***Tentative Schedule:***

Week	Topic	Reading Assignments and Due Dates
Week 1 Aug 22-26	NO LAB	
Week 2 Aug 29-Sep 2	-Lab safety training, rules and the lab tour -Lab overview	Reading assignment and Project Ideas
Week 3 Sep 5-9	-Overview on Utah Lake history and issues -How does a waste water treatment plant work?	<b>Paper Discussion</b>
Week 4 Sep 12-16	-Orem Waste Water Treatment Plant Tour -Wetlands and Water Quality	Reading assignment
Week 5 Sep 19-23	-Trace Metals	Reading assignment
Week 6 Sep 26-30	-Microwave digestion, CEM-manufacturer and technical issues, programing the CEM -Sample digestion	Reading assignment
Week 7 Oct 3-7	-Sample filtration	
Week 8 Oct 10-14	-Introduction to the ICP 1	
Week 9 Oct 17-21 NO Lab on Oct 21		
Week 10 Oct 24-28	-Introduction to the ICP 2	
Week 11 Oct 31-Nov 4	-Introduction to the ICP 3	
Week 12 Nov 7-11	-Sample Analysis	Reading assignment
Week 13 Nov 14-18	-Sample Analysis	
Week 14 Nov 21-25		
Week 15 Nov 28-Dec 2	-Sample Analysis	
Week 16 Dec 5-9	-Project Presentation	<b>Project Report due</b>
Final Week	<b>Project Report</b>	