



CHEM3550: Environmental Chemistry Lab

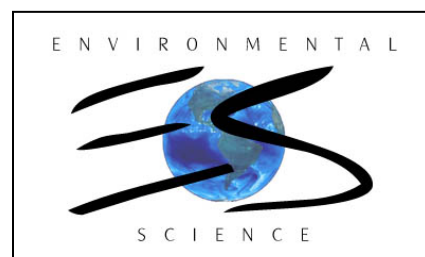
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CHEM3550: Environmental Chemistry Lab Syllabus

Contact Information

Instructor: Dr. Daniel Short

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(Please include your lecture section number in your messages to me. You must use your @rmu.edu mailbox.)

Office/Lab Hours: <http://www.localendar.com/public/dnashort>. Also, by appointment. Students are encouraged to see me immediately after class.

Web Site: <http://academics.rmu.edu/~short/index.htm>

Course Description

Students registering for or who have completed CHEM3500 may elect this laboratory course which meets for one 2.5 hour session each week. CHEM3550 compliments CHEM3500 and provides students the ability to perform experiments that demonstrate and re-enforce the chemistry concepts examined in CHEM3500.

Introduction

CHEM3550 provides a general background in the facts, principles and concepts of chemistry relevant to the environmental scientist.

I am also interested in helping you start to develop or improve upon your general learning and scholarship skills.

Course Format

During class sessions the course material will be presented in an experimental lab based format. We will discuss principles, present demonstrations, examine theories, and work through various exercises.

- (i) To prepare for lab you should read the handout in advance.
- (ii) Bring your course guide to every lecture.
- (iii) During lab take notes on everything presented.
- (iv) After the lab you should review your notes and formally write up your report.

Course Outline (Subject to change)

Week	Lab
1	Intro Session: Safety
	Air Pollution
2	Mixing Ratios (*)
3	Ozone Lab (*)
4	Determination of NO _x in air using active diffusion technique
5	Determination of NO _x in air using active diffusion technique
	Toxic Chemicals
6	B1 or D2: Statistical Treatment of Raw Data and Properties of Natural Waters
7	B2 or D3: Collection and Preservation of Water and Sediment Samples (*)
8	B10: Determination of toxic metal in simulated hazardous waste sample (part I) - AA
9	D14: Determination of toxic metal in simulated hazardous waste sample (part II) - ISE's
	Inorganic Chemical Properties Of Natural Waters and Wastewaters
10	Acidity, Alkalinity, Conductivity and Oxygen Demand of natural waters (*)
11	B9: Determining Fe and Mn in Natural Waters and Sediments
12	D17: Determination of K _D
	Wastes Soils and Sediments
13	D17: Determination of K _D
14	B11 or <u>Filtration lab</u> (*)
15	No Class

(*) Sessions will be assessed in lab. Do not require formal written lab report.

Attendance

Attendance of each scheduled lab session is strongly advised. If you are absent they cannot be made up.

Changes in the class schedule and other notices will be distributed via the RMU email system. It is **your** responsibility to keep up-to-date with these changes.

Disturbances

As a student you have the right to hear the lectures and the class discussions. Every student should respect the rights of others in their

class. Therefore, I reserve the right to **lower** the grade or **dismiss** from class anyone exhibiting improper behavior which disturbs the class. This includes, but is not limited to: arriving late to class (tardiness), leaving early (reverse tardiness), consumption of food (drinks allowed), use of cell phones, and disturbing others through talking.

LATE ARRIVAL TO CLASS is discouraged. It disrupts the other students and the instructor. Never disrupt a class in progress. It is disrespectful to both your professor and fellow students.

Assessment

This course will be assessed on the basis of 5 lab reports and 5 in class assessments.

Grading:

A 93-100 - Outstanding. A thoroughly comprehensive, well-organized and well-written answer or exercise. (Some degree of originality of ideas and treatment may compensate for deficiencies in coverage and organization.)

A- 89-92

B+ 86-88

B 83-85 - Achievement significantly above the level necessary to meet course requirements; coverage, organization and writing satisfactory.

B- 80-82

C+ 77-79

C 70-76 - Achievement meets course requirements, i.e., an evident understanding of the material presented, even with minor deficiencies of coverage, organization, and/or writing.

D 60-69 - Achievement worthy of credit even though course requirement is not fully met, and coverage organization, and/or writing show clearly evident deficiencies.

F <60 Performance indicating that there are serious deficiencies in a student's understanding of the course material, usually accompanied by poor coverage, lack of organization, and/or inadequate writing.

Late work will not be graded; I also observe the right not to grade incomprehensible work or calculations with intermediate steps missing.

Lab Reports

A lab report consists of several parts, **word-processed** and **stapled** together in the following order:

- (i) **TITLE PAGE:** Front page stating the title of the experiment, your name, and the date. A sample title page is included in this guide.
- (ii) **AIM:** A single sentence that states what is being investigated and what information the investigations should reveal.
- (iii) **DIAGRAM:** A drawing or photograph of one set-up from the laboratory, equipment should be labeled.
- (iv) **APPARATUS:** all items necessary written in a sentence.
- (v) **METHOD:** Your explanation of the experimental procedure (must be written in past tense and the third person). Use sub-sections.

The procedure should describe the methodology in enough detail that a reader familiar with general laboratory techniques could easily repeat the experiment. It must be written in paragraph form (not a list or numbered list of commands), and **must be written in past tense and the third person**. For example: 100 g of chemical A was added to the beaker, not I added 100 g of chemical A to the beaker). Try to keep it brief, only a few paragraphs.

- (vi) **RESULTS:** Compile your data in an organized fashion (you must use tables and graphs). **DO NOT** include conclusions here.
- (vii) **CALCULATIONS:** If included show how the problem is set-up and the steps needed to get the answer. Include the appropriate number of significant figures and all units of measurement.
- (viii) **CONCLUSION:** Reports what you have learnt or what values you have determined. If you were given an unknown sample be sure to include its number here. Make sure that your conclusion is comprehensive and discusses all parts of the experiment. Use the results to make your conclusion.

Before leaving for the day, we will display the results and conclusions around the room and discuss them using a 'Gallery Walk'. If you miss this final part of the session you will receive a zero for the entire lab. You must also demonstrate that your workstation is clean. Grade points will be deducted for any equipment left out, unwashed etc.

Academic Honesty

Copying material from other students, the Internet or other sources and submitting it towards the grade in your course is unacceptable, does not qualify as being your own work and is viewed as plagiarism.

Every student at Robert Morris University should make themselves familiar with the University's Academic Integrity Policy (below).

RMU Academic Integrity Policy

Academic Integrity is valued at Robert Morris University. All students are expected to understand and adhere to the standards of Academic Integrity as stated in the RMU Academic Integrity Policy, which can be found on the RMU website at <http://www.rmu.edu/academicintegrity>. Any student who violates the Academic Integrity Policy is subject to possible judicial proceedings which may result in sanctions as outlined in the Policy. Depending upon the severity of the violation, sanctions may range from receiving a zero on an assignment to being dismissed from the university. If you have any questions about the policy, please consult your course instructor.

Recommended Materials

Text - Boehnke, D.N., Delumyea, R.D. (2000) *Laboratory Experiments in Environmental Chemistry*. Prentice Hall. ISBN: 0-13-917171-1

Calculator - A scientific calculator is required. Programmable calculators are acceptable during tests as long as they do not contain in any of their storage devices the course material subject to the testing. You cannot share a calculator during a test. Computers (laptops, notebooks, etc.) cannot be used during tests. Have a calculator and a pad for calculations ready for each class period.

Learning Aids

Communicate with your instructor – you should take full advantage of the availability of your instructor outside of the classroom for face-to-face meetings and via telephone/email contact.

University Center for Student Success – students who may be eligible to receive learning support or physical accommodations should contact the Center for Student Success. To learn more about their services, call (412) 262-8349 or visit their offices in Franklin Center.

Disability

Your success as a student is of utmost importance to me. Students with special requirements that can be accommodated and are covered by the Students with Disabilities Act should notify the instructor.

Students who may be eligible to receive learning support or physical accommodations must also contact the Center for Student Success at 412-262-8349 to schedule an appointment with a counselor and to learn more about accommodation procedures. To receive accommodations in this course, arrangements must be made through the Center for Student Success.

Copyright Information

This is not a department syllabus. It is the property of Dr. Daniel Short based on the University's course description for PHYS2615. It is not to be shared/distributed to prospective or present full or part-time PHYS2610 faculty without the written permission of Dr. Daniel Short.

No Food or Phone Calls are Permitted in the Classroom

