

ChEE/CE 370L

Environmental Science Supplement

Spring 2016

Instructor: Bob Arnold, Room 306A Civil Engineering, 621-2410, rga@email.arizona.edu

Teaching assistant: None

Lecture: Fridays, 12:00 to 12:50

Office hours: To be decided on the first day of class, depending on student and instructor availabilities.

Text: Masters and Ela, 3rd edition—same as for ChEE 370R.

Grading:	Homework	0.15
	Midterm	0.40
	Final	0.45

Homework policy:

- Turn in **homeworks** individually or in groups of 2-3—preferably in groups.
- If your homework is on time, well organized, neat, complete and leads to approximately the right answer, you will receive full credit for it. That is, with a good-faith effort and a reasonable idea about course content, you should be able to get full or nearly full credit for completion of homework assignments.
- I will be available to discuss homework approaches during **office hours** (at least two hours per week) and immediately after each class. There can be weekend review sessions if necessary and you want them—particularly before exams.
- I will provide solutions to homework assignments.
- Assignments will be provided in class on Fridays, and work will be due at the start of the next class, a week later. There will be no credit for late submissions unless a dog ate your initial effort. In that case, you will receive 25% credit, and I will help you find a new dog.

Exam policy:

- **Exams** will be closed book.
- For each exam, you can bring one normal sheet of paper with crib notes.
- The final exam will be comprehensive.

- If you must miss a scheduled exam, let me know well in advance. For reasons that have never been fully understood, make up exams are way more difficult than the originals.
- I have a no-tolerance policy for honor offenses. If I discover that you have cheated on an exam, you will fail the course. Honor is acquired through practice. Everyone starts out with an equal share of honor—none. You can accumulate honor, and the self respect that it invariably brings, over the course of your life through practice. In the end, there is nothing more valuable except your family and friends. You will have better friends and your family will treat you better if you acquire and maintain honor.

SYLLABUS

- 15 Jan Class overview, basics of water structure and properties
- 22 Jan Typical concentration units; material balances
- 29 Jan Chemical kinetics
- 5 Feb Chemical kinetics
- 12 Feb Material balances with reaction
- 19 Feb Material balances around ideal reactors
- 26 Feb **Midterm examination** (50 min., in class)
- 4 Mar Stoichiometry and equilibrium
- 11 Mar Solubility and precipitation reactions
- 18 Mar Spring break—skip class
- 25 Mar Acid/base reactions
- 1 Apr Other reaction types
- 8 Apr Gas/liquid equilibrium
- 15 Apr Solid/liquid equilibrium
- 22 Apr Overview
- 29 Apr To be decided. We can discuss the merit of an **in-class final** versus going with the assigned time during exam week (Wed., 11May—10:30-12:30).

ChEE 370L material is designed to supplement some of the material provided in the lecture class, ChEE 370R. We can do some tailoring to make that work, including discussion of hold-over questions from lectures during the week, some additional problem solving from the 370R course, and so forth. Let's use this hour each week to your best advantage—in addition to providing material on mass balances and water chemistry that you haven't used in a while.

Your in-class participation will improve the classroom and general academic experience a great deal. I will do my best to ensure that you participate actively in some way during classroom periods.