CE/ESR 479/579

# Things to Know for Midterm Exam #2

## (Key Concepts for Your Understanding)

This exam will focus on material covered in class from Week 4 (estuaries) through Week 7 (air/water exchange, basic Streeter-Phelps)

Be able to perform simple calculations of mineral solubility using the solubility product, given information about the composition of the water.

Be able to do simple carbonate equilibrium problems, such as finding the pH of a water near given some other facts about the composition (similar to homework or practice problems.)

If given appropriate information, calculate the rate of uptake or excretion of a chemical by an organism.

Since we did not cover estuaries last exam, I might ask you to interpret a mixing curve, or do a simple calculation using the idea of mixing of riverine and oceanic endmembers.

Know how and when to use the appropriate partitioning coefficient such as vapor pressure, solubility, H, or Kow.

Be able to perform the basic BOD computations such as calculating Lo from BOD-5 or vice versa. Know how to use the k rate, do temperature correction.

Be able to set up a simple air-water interface problem if you are given information about Henry's Law coefficients (H) and piston velocities. Know whether transport is air-side of water-side controlled on the basis of the magnitude of H.

Know how to modify the value of an air-water exchange parameter on the basis of a change in molecular weight (e.g., take a propane parameter and convert it to a suitable approximation for something else like trichlorobenzene).

I might ask a simplified Streeter-Phelps question, such as to to give you the mixed ultimate BOD (Lo of the waste/river mix) and then ask for the critical time.

Have a good command of vocabulary terms. A guide to what is important: terms that showed up on quizzes, and terms that are *italicized* in the text. (Don't forget estuaries).

Finally, brush up on stuff from early in the term that kept cropping up during this part of the term but that you may have had some difficulty with earlier.