

# CE/ESR 479/579

## Things to Know for Final Exam

### (Key Concepts for Your Understanding)

This exam will focus on material covered in class since the last Midterm.

Know how to simplify the Michaelis-Menten formula to its pseudo-linear form at low substrate concentrations. (That is, is given  $V_{max}$  and  $K$ , be able to combine them to find the pseudo-first order  $k$  value).

Know the ways in which Michaelis-Menten *enzyme* kinetics are similar to and are different from Monod *growth* kinetics.

Be able to set up and use simple hydrolysis rate expressions including acid-catalyzed and base-catalyzed hydrolysis. (I don't expect you to know the molecular mechanisms of hydrolysis but I expect you to know how to use the various types of hydrolysis rate constants).

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

Know how and when to use a partitioning bioconcentration factor.

Know how and when to use a kinetic (uptake/excretion) bioaccumulation factor.

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 or 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).

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.

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.