

Chemistry of the Aqueous Environment

Chemistry 371

Section: D100

Term: 2005 Fall

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Discussion Topics: General Course Description:

An introduction to chemical processes in the aqueous environment. Quantitative treatment of the variables determining the composition of natural systems. Chemistry of aqueous toxic agents, wastewater treatment, and related matters.

3 lecture hours/week; 1 tutorial hour/week; 0 lab hours.

Lectures

Topics

2 The concept of chemical species in Aquatic Chemistry

2 Thermodynamics Review

4 Acid-base chemistry of the aquatic environment

1 Fulvic and Humic Acids

4 Solids, colloids and complexes

4 Redox chemistry of the aquatic environment

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2 Interphase Transfer

1 Chemical Speciation Models

2 Geochemical element cycles

2 Water supply, waste water treatment, water pollution

4 Toxic substances in environment, Industrial pollution

2 Analytical Chemistry of Aquatic Systems

Grading: 15% Problem Assignments

20% Midterm Exam

40% Final Exam

25% Term Paper

Required Texts: None

Recommended Texts: Werner Stumm and James J. Morgan, "Aquatic Chemistry: Chemical Equilibria and Rates in Natural Waters", Paperback. Ed. #3, 1996. John Wiley & Sons.

AND

"Environmental Chemistry", 7th Ed., S.E. Manahan, 2000

Materials/Supplies: None

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Prerequisite/Corequisite: Prerequisite: CHEM 281 (or 150) and CHEM 360 (or 261).

Notes: None

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