

COURSE SYLLABUS

ENVIRONMENTAL ORGANIC CHEMISTRY AC2-210 (BBC), GL-137 (MMC) M,W,F 8:00- 8:50 AM

PROFESSOR INFORMATION

Instructor:	Piero R. Gardinali	Phone:	(305) 348-6354
Office:	Marine Sciences Building MSB-356 (BBC)	Fax:	(305) 348-4030
Office Hours:	By Appointment	E-mail	gardinal@fiu.edu
Website:	Professor's Website		

COURSE DESCRIPTION

The course covers in-depth the chemical and physical processes that control the environmental fate and transport of organic molecules in air, water, sediment and biota. The class also discusses case studies of pollutants that have shaped our knowledge of environmental chemistry.

COURSE OBJECTIVES

Students will be able to:

- Identify the physical and chemical processes that control the fate and transport of organic pollutants
- Recognize structural characteristics that control the environmental stability of organic molecules
- Describe the quantitative relationships between concentrations and environmental compartments
- Evaluate case studies of organic compound that have become priority pollutants
- Explain a predictive path for the environmental behavior of an unknown organic molecule
- Define and explain general physical and chemical processes that control stability of organic pollutants

MAJOR & CURRICULUM OBJECTIVES TARGETED

CHM6281 is part of the core curriculum of the Environmental Chemistry Track of the Chemistry PhD program.

IMPORTANT INFORMATION

POLICIES

This is a open-plan class and is tailored for specific student needs. The course contains about 60% traditional lecture instruction and 40% in-class discussion of current topics in the field of environmental chemistry. Students are required to prepare and present additional topics.

Class is offered in multiple campuses and students have the option to attend at any of the remote sites (ACI-210 at BBC or GL-137 at MMC)

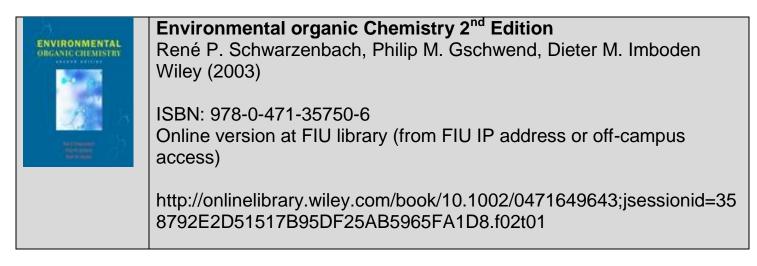
ACCESSIBILITY AND ACCOMODATION

For additional assistance please contact our **Disability Resource Center**.

COURSE PREREQUISITES

Pre-requisites: Graduate classification, CHM2211, CHM3411, or permission of the instructor

TEXTBOOK



COURSE DETAILS

COURSE COMMUNICATION

Communication in this course will take place via Email

I WILL BE USING YOUR FIU OFFICIAL EMAIL ADDRESS; IF YOU HAVE SOMETHING DIFFERENT PLEASE LET ME KNOW.

ASSIGNMENTS

Students will be required to identify a molecule of environmental relevance and prepare a 15 minute presentation on the compound, including its preparation, formulation, environmental chemistry and toxicology. The presentation will be part of the class discussions. Depending on the number of students 1 or 2 of these presentations will be assigned during the term.

GRADING

The class grading will consist of 2 miterms, 2 assignements and a final. The grades will be distributed as follow:

Midterm 1	25% September 26, 2014
Midterm 2	25% November 17, 2014
Class Assignments	25% - Class discussion lead, homework.
Final Exam	25% December 10, 2014 7:30 – 9:30 AM

COURSE TENTATIVE CALENDAR

Part I: Introduction (August)

• An Introduction to Environmental Organic Chemicals.

Part II: Equilibrium Partitioning Between Gaseous, Liquid, and Solid Phases. (September)

- Partitioning: Molecular Interactions and Thermodynamics.
- Vapor Pressure.
- Activity Coefficient and Solubility in Water.
- Organic Liquid-Water Partitioning.
- Organic Acids and Bases
- Sorption

Part III: Transformation Processes. (October)

- Thermodynamics and Kinetics of Transformation Reactions.
- Hydrolysis
- Redox Reactions.
- Photolysis.
- Biological Transformations.

Part IV: Modeling Tools: Transport and Reaction. (November)

- Transport Through Boundaries.
- Air-Water Exchange.
- Box Models.

Part V: Environmental Systems and Case Studies. (September-December)