

# POLLUTION PREVENTION: FUNDAMENTALS AND PRACTICE

## ESGN 463 and ESGN 563

Spring 2012

Wednesday, 6:00 – 9:00 p.m.

The objective of this course is to introduce the principles of pollution prevention, environmentally benign products, processes, and manufacturing systems. The course provides a foundation in concepts and methods of pollution prevention. Focus includes sources and minimization of industrial pollution; methodology for life-cycle assessments and developing successful pollution prevention plans; technological means for minimizing the use of water, energy, and reagents in manufacturing; and tools for achieving a sustainable society. Materials selection, process and product design, and packaging are also addressed.

This course covers a wide variety of topics. No one could possibly be an expert in all of them. Guest lecturers have been invited to speak throughout the course on their particular areas of expertise. To view the topics and materials for the spring 2011 semester visit: <http://www.indigowatergroup.com/CSM%20Portal.htm>

Several **field trips** will introduce students to pollution prevention practices in use at different industries: cheese processing, meat processing, steel processing, and municipal solid waste recycling. Field trips are not mandatory, but are highly encouraged. There is **no textbook** for this course.

Date	Topic	Instructor
Wed, January 11, 2012	Introduction to pollution prevention	Sidney
Wed, January 18, 2012	Industrial activity and the environment	Sidney
Wed, January 25, 2012	Municipal pollution prevention programs	Recorded - Sidney
Tue, January 31, 2012	** Field trip to Cargill and Leprino Foods in Fort Morgan	
Wed, February 01, 2012	Fuel Cells, Biogas, and "State of the Art Project"	Sidney
Wed, February 08, 2012	Life Cycle Assessment	Sidney
Wed, February 15, 2012	Design for the Environment	Erik Spiller
Wed, February 22, 2012	In-Class Field Trip to MSW Recycling Facility / Pumps and Valves	Sidney
Wed, February 29, 2012	Fugitive Emissions	Joe Legare
Wed, March 07, 2012	Pollution Prevention Planning	Joe Legare
Wed, March 14, 2012	SPRING BREAK - NO CLASS	
Wed, March 21, 2012	Energy conservation	Clay Walton
Thurs, March 22, 2012	** Field trip to Zimmerman Metals, Inc in Denver	
Wed, March 28, 2012	P2 and BMPs in Different Industries	Sidney
Fri, March 30, 2012	**Potential field trip to Recycled Materials Company in Arvada	
Wed, April 04, 2012	Pollution prevention economics	Sidney
Wed, April 11, 2012	Energy, Water and Waste Reduction in a Brewery	Julie Smith
Friday, April 13, 2012	** Behind the scenes tour at Coors in Golden	
Wed, April 18, 2012	Treatment Technologies for Metals Removal from Wastewater	Sidney
Wed, April 25, 2012	Water Resources, DNAPLS, and Fracking	Sidney
Wed, May 02, 2012	Brief class presentations to share SOA findings with the class	All

\*\* Note: Dates for topics and field trips may shift during the semester.

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Prerequisites: ESGN 500, or consent of instructor  
Grading Basis: Weekly Quizzes and Homework (70%);  
State-of-the-Art Study (30%),  
No midterm or final exam.