EESD15H3 - CLEANING UP OUR MESS: REMEDIATION OF TERRESTRIAL AND AQUATIC ENVIRONMENTS
-2009-10-

Instructor: Dr. Silvija Stefanovic
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Dr. Stefanovic Office hours: Friday 3-5pm.

LECTURE: Fridays from 12-3pm in room BV 264 (schedule of topics & readings on pg 2)

COURSE DESCRIPTION
This course consists of a study of the ways in which hazardous organic and inorganic materials can be removed or attenuated in natural systems. The theory behind various technologies, with an emphasis on bioremediation techniques and their success in practice. An introduction to the unique challenges associated with the remediation of surface and ground water environments, soils, marine systems, and contaminated sediments.

COURSE PREREQUISITES
Students must have successfully completed BGYA01H & BGYA02H & CHMA10H & CHMA11H & PHYA10H or PHYA11H

TEXTBOOK

GRADE BREAKDOWN:
Presentation (Types of contaminants): 15%
Final Project (Case study): 25%
Project presentation 10%
Final Examination: 50%

LECTURE NOTES
The lecture slides will be posted in *.pdf format on the intranet. You will require Adobe Reader to open the files (available free of charge at www.adobe.com).

FINAL EXAM
The final exam will draw from lectures and student’s presentations and includes lecture notes and any material presented in the classroom. Information from the textbook and other resources not directly covered in class or in the practical will not be tested on exams. More details about the exams will follow.

COURSE EMAIL POLICY
Email is not an effective way of teaching and email inquiries regarding course materials will not be answered. Dr. Stefanovic will be available during designated office hours to answer questions regarding course material. If you have questions, then please see instructor during office hours – this time is for you so please do not hesitate to use it.
### LECTURE SCHEDULE

<table>
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<tr>
<th>Date</th>
<th>Topic</th>
<th>Associated Readings in Textbook</th>
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| September 11th  | Course orientation
Introduction to Soil and Groundwater Remediation            | Lecture notes                   |
| September 18th  | Basic Soil and Groundwater Properties (review)                        | Lecture notes Chapter 1&4       |
| September 25th  | Environmental Site Assessment                                         | Lecture notes                   |
| October 2nd     | Student’s presentations (Types of Contaminants)                       | Handouts Chapter 2&3            |
| October 9th     | Groundwater Remediation: Introduction and Investigative methods       | Lecture notes                   |
| October 16th    | Groundwater Remediation: Physical Methods;
Ex-Situ Technologies;
In-Situ Technologies. Case Histories | Lecture notes Chapter 6&10     |
| October 23rd    | Groundwater Remediation: DNAPLs Remediation Methods;
LNAPLs Remediation Methods. Case Histories | Lecture notes only              |
| October 30th    | Soil Remediation: Phytoremediation, In-situ and Ex-situ Thermal Treatments. Case Histories | Lecture notes Chapter 12       |
| November 6th    | Soil Remediation: Chemical and Biological Reaction
Solidification and Stabilization Case Histories | Lecture notes Chapter 8&11     |
| November 13th   | Soil Remediation: Soil Vapor Extraction;
Soil Washing and Solvent Extraction. Case Histories | Lecture notes Chapter 7&9       |
| November 20th   | Student’s presentations (Case studies)                                |                                 |
| November 27th   | Student’s presentations (Case studies) Final Review                  |                                 |

*I will follow this schedule as closely as possible, but things being what they are, some of these topics may "overflow" over into other time slots.*
FURTHER READINGS


