



Bioremediation of Groundwater and Soil

ENVENG 5120

Credit Hours:

3.00 - 3.00

Course Levels:

Undergraduate (1000-5000 level)

Graduate (5000-8000 level)

Course Components:

Lecture

Course Description:

An overview of biotechnology methods for remediation of groundwater and soils. Overview of theory and bioremediation component design. Includes a study of the role of key microbial groups capable of transforming common contaminants in subsurface media with a particular emphasis on molecular genetic biotechnology methods to identify and document their ecology and metabolic condition.

Prerequisites and Co-requisites:

Prereq: A course in Microbio; or Grad standing; or permission of instructor.

Course Goals / Objectives:

- Develop skills related to molecular genetic methods to identify metabolic condition of microorganisms. Applications include water/wastewater treatment, natural systems, bioremediation, and biofuels
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Course Topics:

- Environmental Microbiology (microbial ecology, microbial physiology, microbial genomes and genetics)
 - Traditional and molecular methods in biotechnology (cell counts and staining, microscopy, PCR, RT-PCR, qPCR, cloning and sequencing, microarrays, metagenomics, national databases)
 - Biotechnology applications (water supply, biological wastewater treatment, natural systems, bioremediation, biofuels)
 - Journal article discussion
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Designation:

Elective