

Rutgers, The State University of New Jersey

DEPARTMENT OF ENVIRONMENTAL SCIENCES

11:375:430 – HAZARDOUS WASTES (Undergraduate Level)

16:375:530 – HAZARDOUS WASTE MANAGEMENT (Graduate Level)

(3 Credits)

Spring 2024

Objectives: This course instructs students in hazardous waste identification, management, and disposal/treatment processes. The applicable federal and state legislation will be covered in this course. Particularly, the governing federal laws of hazardous waste, Resource Conservation and Recovery Act (RCRA), Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and its amendment, Superfund Amendments and Reauthorization Act (SARA) are covered in detail. New Jersey's environmental laws and regulations will also be covered in this class, including New Jersey Spill Compensation and Control Act (Spill Act), Industrial Site Recovery Act (ISRA), and Site Remediation Reform Act (SRRA). Fundamental principles of certain treatment technologies will be introduced in depth with real-life examples.

Course Contribution: This course will contribute 3 credits towards Environmental Science major for both undergraduate and graduate levels.

Prerequisites: 11:375:302 Water and Wastewater Treatment and 11:375:307 Solid Waste Management.

Lecture: Tuesday, 5:50 – 8:50 pm, in person, for emergencies via Zoom - Room ENR-223

Canvas Pages:

Undergraduate: <https://rutgers.instructure.com/courses/267271>

Graduate: <https://rutgers.instructure.com/courses/269417>

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Office Hours: By appointment only.

Recommended References: Please see the bibliography on course page.

Grading Policy:

Homework	20%
Midterm Quiz	40%
Term Project	40%

OUTLINE OF LECTURES

Week	Topic
1	Course Overview - Review of Basic Definitions – Legislative Process
2	Introduction to Environmental Laws
3	Introduction to Environmental Laws (continued) - Physical, Chemical, and Biological Principles - Hazard, Safety, and Acceptable Risk
4	Physical, Chemical, and Biological Principles - Hazard, Safety, and Acceptable Risk (continued) - RCRA Legislation and Overview of Regulations
5	RCRA Legislation and Overview of Regulations (continued); RCRA Regulations: Definitions, Criteria, Characteristics, and Lists (CFR 260-261)
6	RCRA Legislation and Overview of Regulations (continued)
7	Generators, Transporters, Manifests (CFR 262-263); Storage, Treatment, and Disposal Facilities (CFR 264-268); HSWA
8	Introduction to CERCLA and SARA Legislation

9	SPRING BREAK
10	Re-cap of CERCLA legislation - CERCLA Regulations
11	New Jersey State Laws: Spill Act – ISRA - SRRA - New Jersey Regulations: Administrative Procedures, Tech Rule, Guidance Documents
12	MIDTERM QUIZ (via Zoom)
13	Introduction to Treatment Technologies – Thermal Treatment, Physical-Chemical Treatment
14	Physical-Chemical Treatment (Continued) - Solidification/Stabilization
15	Other Physical-Chemical Treatment Methods - Biological Treatment - Sampling Equipment/Methods
16	Student Presentations (via Zoom)