

## CIVE 3331 Syllabus

**CIVE 3331 - ENVIRONMENTAL ENGINEERING**  
Spring 2002

**1999 Catalog Data:** CIVE 3331: Environmental Engineering Cr.3. (3-0). Prerequisites: CHAM 1112,1332. Introduction to air, water, and environmental pollutants, and concepts of design for treatment.

**Coordinators:** Theodore G. Cleveland, Ph. D., P. E., Associate Professor

**Required Text:** *"Introduction to Environmental Engineering and Science"* 2nd Edition. G.M. Masters. 1996. Prentice-Hall, Upper Saddle River, New Jersey. 651p.

**Prerequisites by Topic:**

1. General Chemistry
2. Calculus

**Course Objectives<sup>1</sup>:**

- **Objective 1:** To teach students about current issues in environmental engineering (1, 4, 5, 6, 7, and 8)
- **Objective 2:** To teach students concepts used in treatment and mitigation of pollutants (1, 2, 4, 5, 6 and 8).
- **Objective 3:** To teach students fundamental problem solving tools used in environmental engineering. (1, 2, and 7).

**Topics:**

1. Environmental history; policy; development of legislation. (1 weeks)
2. Analysis tools: mass and energy; chemistry; growth; risk (4 weeks).
3. Water Pollution; oxygen demand, prevention measures; treatment (4 weeks).
4. Air Pollution: sources; prevention measures (2 weeks).
4. Solid Waste: hazardous wastes; storage; resource recovery (1 week).

**Evaluation:** 1. Weekly assignments; 2. Exams; 3. Class participation.

**Performance Criteria<sup>2</sup>:**

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<sup>1</sup> Numbers in parentheses refer to the Department of Civil and Environmental Engineering goals.

<sup>2</sup> Letters in parentheses refer to ABET EC 2000 outcomes assessment items (Criterion 3).

Objective 1.

*Performance Criteria:*

- 1.1 Students will demonstrate the ability to use the world-wide-web, state depository libraries and federal depository libraries to find legislation and technical guidance documents relevant to environmental engineering (a, b, c, e, g, h, k).
- 1.2 Students will demonstrate the ability to write critical essays on selected environmental issues using persuasive communication techniques (b, d, h, j, k).

Objective 2.

*Performance Criteria:*

- 2.1 Students will demonstrate the ability to select treatment techniques to address environmental pollutants (a, b, c, e, h, k).
- 2.2 Students will demonstrate the ability to conceptually design a treatment scheme for various environmental pollutants (a, b, c, e, h, k).
- 2.3 Students will demonstrate the ability to calculate risk for selected environmental pollutants.

Objective 3.

*Performance Criteria:*

- 3.1 Students will demonstrate the ability to apply the concept of materials balance equations in analysis of various environmental engineering problems (a, b, c, d, e, g, h, i, j, k).
- 3.2 Students will demonstrate the ability to analyze data to support engineering decisions (a, b, c, d, e, g, h, i, j, k).

**Prepared by:**

Theodore G. Cleveland (Created)  
Theodore G. Cleveland (Modified)

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