

**Virginia Western Community College**  
**EGR 280**  
**Foundations of Environmental Engineering**

**Prerequisites**

CHM 111

**Corequisites**

none

**Course Description**

Provides an introduction to the concepts of environmental engineering including air pollution, water pollution, water treatment, waste management, and health risk assessment. Examines sustainability and global climate change in the context of contemporary environmental engineering.

**Semester Credits: 3   Lecture Hours: 3   Lab/Clinical/Internship Hours: 0**

**Required Materials****Textbooks:***TBD***Other Required Materials:**

none

**General Course Purpose**

EGR 280 introduces the major concepts of environmental engineering, standing alone as an introduction to current environmental challenges or as the foundation for further study in the field of environmental engineering.

See: <https://courses.vccs.edu/courses/EGR280-FoundationsofEnvironmentalEngineering/detail>

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**Course Outcomes**

**At the completion of this course, the student should be able to utilize the following:**

- Scientific Literacy
  - Solve mass balances, calculate BOD (Biochemical Oxygen Demand)
  - Explain air pollution
  - Describe the impact of air pollution on human health
- Civic Engagement
  - Relate environmental engineering practices to environmental laws and regulations
- Critical Thinking
  - Describe water treatment, wastewater treatment, and solid waste management technologies
- Written Communication
  - Explain global climate change mechanisms and impacts

**Topical Description**

- Introduction to Environmental science/engineering
- Mass and Energy Balances
- Environmental Chemistry
- Water Pollution
- BOD (Biochemical Oxygen Demand) Calculations
- Drinking Water Treatment
- Wastewater Treatment
- Hazardous Waste Treatment
- Solid Waste Management
- Air Pollution
- Global Climate Change and Impacts
- Health effects and Risk Assessment
- Sustainable Development

**Notes to Instructors**

- All instructors teaching this course in any given semester will use the same textbooks.
- One or two in-semester tests and a final exam are recommended to be included in the course.
- The content of this course will be updated every few years in collaboration with engineering faculty from across the VCCS.

[ADA Statement](#) (PDF)

[Title IX Statement](#) (PDF)