

UCIRVINE | EXTENSION

# Environmental Management Certificate Program



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# UC Irvine Extension

## Certificate Program in Environmental Management

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### OVERVIEW

Liability concerns, regulatory requirements and enforcement, and public interest greatly influence development and business decisions. UC Irvine Extension's Certificate Program in Environmental Management prepares professionals at every career level to meet the challenges of the rapidly changing environmental profession.

Designed for individuals responsible for conducting environmental management activities such as permitting and regulatory compliance, site assessment and remediation, developing/operating pollution control systems, or performing facility environmental health and safety functions. Prepares candidates for multi-function, multimedia and/or multi-facility responsibilities.

### WHO SHOULD ATTEND

Individuals transitioning into the environmental field; specialists wishing to broaden their knowledge of environmental, health and safety areas; mid-level experienced professionals who want to enhance and update their skills and knowledge; and individuals who wish to achieve manager-level responsibilities in the field of environmental management.

### CERTIFICATE REQUIREMENTS

The certificate is awarded upon successful completion of three required courses (9 units) and three elective courses (9 units) each with a grade of "C" or better. It is recommended that candidates complete the required courses prior to the elective courses. An [Application for Candidacy](#) must be submitted before completion of the third course in the program.

### CERTIFICATE PREREQUISITE

One year of college chemistry or completion of *Introductory Chemistry of Hazardous Materials, Chemistry X470*, is required for the certificate.

### PROGRAM BENEFITS:

- Understand the roles of environmental regulatory agencies in a specific project.
- Understand the basic sciences influencing environmental control systems.
- Recognize the importance of multi-media environmental management.
- Conduct site-specific environmental activities such as project planning and assessing compliance.
- Integrate the disciplines of environmental management into a comprehensive program.
- Recognize the importance of specific environmental computer tools.
- Obtain immediately applicable knowledge and skills for enhanced job performance or career advancement.

### PROFESSIONAL ASSOCIATIONS OF INTEREST

Visit the Women's Environmental Council (WEC) at [www.wecweb.org](http://www.wecweb.org); and the Industrial Environmental Coalition of Orange County (IECOC) at [www.iecoc.net](http://www.iecoc.net).

### PROGRAM FEES

Your total cost may vary substantially depending on the specific courses you choose. Starting at \$425 to \$685

Course fees	\$4300
Candidacy Fee	\$125
Textbooks <sup>1</sup>	\$500
Parking (\$34 per quarter)	\$136
<b>Total Estimated Cost</b>	<b>\$5061</b>

Your actual cost could be more or less than this amount (most likely less because this is a conservative estimate).

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*Note: You may take as many individual courses as you wish without enrolling in the full certificate program.*

**COURSE DESCRIPTIONS**

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**REQUIRED COURSES**

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**SOCECOL X498.1 Legal and Regulatory Framework of Environmental Management (3 units)** Enhance your understanding of the state and federal legal and regulatory system as it relates to environmental management. Increase your knowledge of topics including: the legislative and regulatory history of major environmental programs at the federal, state and local levels; principals of land use governance; hazardous materials rules; air and water quality regulations; OSHA workplace regulation; hazardous wastes and Superfund; the permitting process; siting of hazardous waste facilities, TSCA; plant and site closure; and other elements of the environmental legal and regulatory framework.

**SOCECOL X497 Chemical and Physical Principles of Environmental Management (3 units)** Enhance your knowledge of the application of physical and chemical principles to Environmental Science. Gain new insight into the scientific process as used in environmental management. Learn an interdisciplinary approach using chemistry, physics, geology, meteorology, bioremediation and engineering principles to identify, evaluate and manage multi-media environmental problems. Guest experts serve as lecturers for selected sessions. This course will be of interest to those who have some background in science, but not necessarily a focus on the physical sciences.

**CEM X492.41 Biological Principles of Environmental Management (3 units)** Exposure to contaminants released in environmental and occupational settings can impact human and environmental health. Gain an understanding of the biological principles relating environmental contamination to adverse human and environmental health outcomes. Learn how the introduction of new technologies, such as the development and use of nano materials, and conventional technologies used for power, manufacturing and other human activities could have effects on biological systems. Explore current thinking on ethics, public perception of comparative risks, and the application of information obtained from

toxicological and environmental health studies to the process of determining "acceptable" levels of risk associated with exposures to toxicants. Lectures are supplemented by case studies of recent incidents.

**ELECTIVE COURSES**

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**SOCECOL X498.9 Industrial Waste Management (3 units)** Enhance your knowledge of industrial processes and the generation of waste streams. Learn about the various raw materials and chemicals used in industry, and examine the changes that occur as they move through the industrial processes. Gain an understanding of the regulations related to waste stream management, and the EPA-recognized treatment technologies for specific industries. An in-depth review of waste minimization provides the foundation to implement an effective pollution prevention program. You will also learn about the life cycle design for general manufacturing.

**ENGRCEE X468.5 Assessment and Remediation of Environmental Contamination (3 units)** Enhance your knowledge of assessment and remediation of subsurface environmental contamination through the framework of the site conceptual model. Write a feasibility study to evaluate remediation alternatives and select appropriate methods for cleaning up a contaminated site. Learn basic techniques for collecting and evaluating data to identify the extent of contamination and to characterize the properties of saturated and unsaturated geologic materials affecting contaminant fate and transport. Learn about remediation technologies for soil and groundwater and their applicability to different contamination scenarios.

**ENGRCEE X468.2 Groundwater Contamination Issues in Southern California (3 units)** Enhance your knowledge of current issues regarding groundwater contamination in Southern California. A review of hydrogeology and groundwater contamination issues is presented. The instructor and expert guest lecturers then provide an overview of drinking groundwater issues related to the LA Basin, Orange County, and outlying areas. Fifteen major Superfund and other groundwater sites are then presented with a focus on the contaminant type, remediation status, and the regulatory/liability framework. Two field trips provide the opportunity to observe local water treatment facilities. The course will be of interest to groundwater/site remediation professionals, and other environmental professionals interested in learning more about groundwater and contamination issues in our communities.

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**ENGRCEE X468.6 Environmental Sampling and Analysis (3 unit )** Gain an understanding of the full range of environmental sampling and analysis - for air, water, and soils. Increase your knowledge of topics that include: EPA and other regulatory agency methods for air, water, and solid/hazardous wastes; sampling equipment and procedures for site characterization; and standard methods for occupational health/industrial hygiene. Gain practical information from a field presentation of common soil and ground water sampling equipment. Visit a certified lab and observe the practices involved in performing tests and analyses.

**ENGRCEE X467 Environmental Applications of Air, Water and GIS Programs: Computer Modeling Laboratory (3 units)** Get practical, "hands on" training in environmental computer modeling. Learn from experts who will guide you to a better understanding of basic theoretical foundations of chemical fate and transport modeling, including vapor migration, groundwater transport, and air dispersion. Learn how to present your results visually using Geographic Information Systems (GIS). Participants will gain modeling experience by setting up and running major computer programs selected from those approved by regulatory agencies. Guest experts serve as lecturers for selected sessions.

**ENGRCEE X468.3 Clean Water Program Regulations and Management (3 units)** Gain an in-depth understanding of the impact and control of water pollution from urban runoff and other human activities. Grasp new insight into the evolving role of comprehensive watershed protection management. Enhance your knowledge of topics that include: review of the permitting and monitoring requirements for construction, industrial, commercial, and residential activities with emphasis on Best Management Practices (BMPs); management of urban runoff from the facility, community and watershed perspectives; Low Impact Development (LID); Hydro-modification Plan (HMP); receiving waters Total Maximum Daily Loads (TMDLs); and the roles of education and enforcement in the successful management of urban runoff pollution. A field trip provides hands-on, practical experience utilizing BMPs.

**ENGRCEE X468 Climate Protection and Environmental Sustainability: The Business of Mitigating Climate Change (3 units)** Climate protection and environmental sustainability requires a systems engineering approach to develop and

implement a Strategic Plan for climate protection and sustainable practices. In this course you will explore the forces driving sustainability change, the application of sustainable practices, and be guided through an analysis that will help you develop a vision and plan for implementation. Topics covered include: understanding the forces driving change, developing a Strategic Vision, identifying options and analyzing sustainability solutions, and developing and communicating a Sustainability, Climate Protection, or Impact Reduction Plan. Learn a systems approach to developing a sustainable business or community - whether to affect the bottom line for energy usage, develop new markets, or "Go Green".

**SOCECOL X499.8 Sustainability and Green Initiatives for the Workplace and the Environment (1.5 units)** Gain an understanding of how organizations are taking responsibility for the impact of their activities on employees, customers, communities, and the environment. Learn how to manage interdisciplinary relationships within an organization to develop and implement workplace programs that encompass initiatives supporting corporate social responsibility (CSR), sustainability, and green initiatives. Learn a practical approach to applying CSR and sustainability principles, and presenting data to decision makers for maximum impact. Enhance your knowledge of topics that include: elements of CSR and sustainability programs; organizational impact and risk factors; voluntary and regulatory initiatives; certification and special interest systems; environmental impact analysis; and methods and resources to solve problems.

**SOCECOL X498.10 Introduction to Environmental Assessment and Auditing (3 units)** Enhance your knowledge of the basic principles of environmental assessment and auditing. First, learn about the ASTM process for performing Phase I Site Assessments. Explore topics that include site inspection, environmental historical review process, governmental database review, and report preparation. Then learn the basic concepts of performing Phase II site assessments and risk assessments. Conclude with a review of compliance auditing processes and gain new insight into the audit process as it relates to regulatory compliance audits and EPA involvement.

**ENGRMAE X422 Air Quality Permitting and Compliance (3 units)** Gain an in-depth understanding of SCAQMD air quality permitting and regulatory

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compliance as applied to Industrial and Government facilities. Explore the responsibilities and regulations of air quality management agencies on federal, state and local levels. Prepare for the SCAQMD Certified Professional Permitting exam. Get instruction in permit application preparation and examine issues related to permitting and compliance such as identifying and quantifying emissions, calculating air toxic health risks, and determining rule compliance. Learn about the Federal Clean Air Act revisions (including Title V), the California Clean Air Act, AB 32 Greenhouse Gas Legislation, and the SCAQMD RECLAIM Program. Approved by CAPCOA and meets the requirements of the Air Pollution Permit Streamlining Act.

### **MGMT X494.2 Principles of Occupational Safety and Environmental Health Management (3 units)**

As an occupational safety and environmental health professional, you need to be able to integrate business strategies with sound environmental health and safety (EHS) principles. Learn the skills you need to successfully achieve business goals, while preventing environmental health and safety risks. Gain new insight into topics including implementing and maintaining effective EHS management systems; EHS information systems; measuring performance; EHS finance; using EHS as a competitive advantage; and "influencing with authority.

## LIST OF COURSES

<b>Catalog Number</b>	<b>PREREQUISITE (3 Units)</b>
CHEM X470	Introductory Chemistry of Hazardous Materials ( 3 units )
	<b>REQUIRED COURSES (9 Units)</b>
SOCECOL X498.1	Legal and Regulatory Framework of Environmental Management ( 3 units)
SOCECOL X497	Chemical and Physical Principles of Environmental Management ( 3 units )
CEM X492.41	Biological Principles of Environmental Management ( 3 units )
	<b>Elective Courses (choose 9 credit units)</b>
SOCECOL X498.9	Industrial Waste Management ( 3 units )
ENGRCEE X468.5	Assessment and Remediation of Environmental Contamination ( 3 units )
ENGRCEE X468.2	Groundwater Contamination Issues in Southern California ( 3 units )
ENGRCEE X468.6	Environmental Sampling and Analysis ( 3 units )
ENGRCEE X467	Environmental Applications of Air, Water and GIS Programs: Computer Modeling Laboratory ( 3 units )
ENGRCEE X468.3	Clean Water Program Regulations and Management ( 3 units )
ENGRCEE X468	Climate Protection and Environmental Sustainability: The Business of Mitigating Climate Change ( 3 units )
SOCECOL X499.8	Sustainability and Green Initiatives for the Workplace and the Environment ( 1.5 units )
SOCECOL X498.10	Introduction to Environmental Assessment and Auditing ( 3 units )
ENGRMAE X422	Air Quality Permitting and Compliance ( 3 units )
MGMT X494.2	Principles of Occupational Safety and Environmental Health Management ( 3 units )