

CUYAMACA COLLEGE
COURSE OUTLINE OF RECORD

ENVIRONMENTAL HEALTH AND SAFETY MANAGEMENT 140 – LABORATORY SAFETY MANAGEMENT

4 hours lecture, 4 units

Catalog Description

An overview of laboratory safety management which may be performed by a safety technician in biotechnology, chemical manufacturing, university and private laboratory settings. Topics include recognition, evaluation and control of laboratory hazards associated with chemicals, radioactive materials, lasers, animals, laboratory equipment, and biological materials. Emphasis will be on environmental health and safety management duties performed in laboratory settings.

Prerequisite

None

Course Content

- 1) Regulations and standards for laboratory safety
- 2) Bloodborne pathogens
- 3) Biological hazards
- 4) Laboratory equipment safety
- 5) Radiation safety
- 6) Laser safety
- 7) Laboratory hoods and ventilation
- 8) Laboratory waste handling and storage
- 9) Chemical hygiene plans
- 10) Respiratory protection programs
- 11) Medical evaluation requirements
- 12) Emergency response and reporting requirements
- 13) Audits and inspections in the laboratory environment
- 14) Recordkeeping and reporting requirements
- 15) Safety management programs beneficial in the laboratory setting
- 16) Laboratory safety equipment standards (Eye wash, showers, etc.)
- 17) Animal care safety
- 18) Laboratory security requirements
- 19) Laboratory industry environmental compliance and sustainability management

Course Objectives

Students will be able to:

- 1) Apply California and Federal regulations to manage program compliance for chemical, nuclear, physical and biological hazards found in laboratory operations.
- 2) Identify and evaluate chemical hygiene plan components to laboratory chemical management practices.
- 3) Differentiate requirements of OSHA and EPA required programs in a laboratory setting.
- 4) Evaluate and compare safety management programs for beneficial uses and identify measures of success for compliance audits.
- 5) Identify regulations, hazards, and controls applied to live animal care in a laboratory setting.

- 6) Successfully create audits and inspection tools for laboratory settings.
- 7) Describe requirements for laser safety and storage, handling and disposal of radioactive materials.
- 8) Successfully complete bloodborne pathogens training in compliance with OSHA requirements.
- 9) List program requirements for laboratory chemical security measures.
- 10) Identify, describe and apply California and Federal regulations and standards relevant to laboratory environmental health and safety management inspection and audit practices.
- 11) Apply California and Federal standards to assess worksites and recognize hazardous conditions and/or noncompliance.
- 12) Evaluate job processes and identify appropriate safety program applications (e.g., engineering controls, personal protective equipment) in order to protect worker safety.

Method of Evaluation

A grading system will be established by the instructor and implemented uniformly. Grades will be based on demonstrated proficiency in subject matter determined by multiple measurements for evaluation, one of which must be essay exams, skills demonstration or, where appropriate, the symbol system.

- 1) Quizzes and exams which measure students' ability to identify, describe and apply California and Federal general safety regulations and standards related to hazardous conditions and/or noncompliance.
- 2) Exercises which measure students' ability to conduct laboratory inspections and develop EHS programs in compliance with California and Federal safety regulations and standards.
- 3) Video presentations/projects measuring the student's ability to create or apply EHS programs to laboratory settings.

Special Materials Required of Student

None

Minimum Instructional Facilities

Smart Classroom

Method of Instruction

- 1) Lecture and discussion
- 2) Field trips, guest lecturers
- 3) Projects, hands-on exercises

Out-of-Class Assignments

- 1) Reading/multimedia assignments
- 2) Writing assignments
- 3) Projects
- 4) Reports

Texts and References

- 1) Required (representative example): Current Industry Standards as provided.
- 2) Supplemental: Consensus standards and peer-review, scholarly journals.

Student Learning Outcomes

Upon successful completion of this course, students will be able to:

- 1) Use California and Federal safety standards to perform laboratory hazard recognition, evaluation and control of chemical, biological and physical hazards.
- 2) Properly manage EHS programs in a laboratory setting by providing employee training, program audits, and conducting site inspections.