

Frontline Foundation
Professional Development Curriculum

2012



Biosafety Professional Certificate Program

The Biosafety Professional curriculum provides professionals working in biocontainment laboratories a unique opportunity to increase their knowledge and achieve professional recognition of their abilities. Completion of seven core courses and three elective courses in Biosafety and Biocontainment provide the participant with a Basic Level certificate. Completion of four advanced courses leads to an Advanced Level certificate. Subsequent enrollment in the Comprehensive Certificate Program, which includes a practicum in a biocontainment laboratory, and successful completion of a final exam, will provide the participant with a Comprehensive Certificate in Biocontainment Practice. In some cases, evidence of experience and competency can substitute for the Practicum.

Core courses must be taken from Biosafety Professional course catalog at a Frontline Foundation sponsored training event, but elective and advanced courses may be taken from an approved provider (i.e. American Biological Safety Association, American Society of Microbiology, American Lab Animal Association). As an IACET Authorized Provider, Frontline Foundation offers CEUs for its programs that qualify under IACET guidelines. For more information, go to www.frontlinefoundation.org. Biosafety professional courses are designed for persons who work in BSL-2 or BSL-3 laboratories currently or would like to learn more about the safety practices and procedures utilized in these laboratories.

Biosafety Professional Core Courses

Course Number: BP-150**

0.4 CEU

Title: Laboratory Sterilization and Disinfection for Biocontainment Professionals

Prerequisite(s): None

Summary: Review of decontamination and sterilization requirements and practices in the biocontainment laboratory environment. In depth discussion of various disinfection systems, chemicals utilized in the disinfection process, chemical handling and storage requirements, and waste processing systems.

Learning Outcomes: The participant will be able to:

- Identify the differences between decontamination, disinfection, and sterilization
- Describe common laboratory disinfectants and their uses
- Identify methods of sterilization
- Identify common methods of in-house medical waste treatment and the elements of a medical waste management plan

Course Number: BP-160**

0.4 CEU

Title: Principles of Biosafety and Biocontainment for Biocontainment Professionals

Prerequisite(s): None

Summary: Introduction to biocontainment laboratory philosophy and design intent for biocontainment professionals. Discussion of the distinguishing characteristics between BSL-1, BSL-2, BSL-3 (high containment) and BSL-4 (maximum containment) laboratories.

Learning Outcomes: The participant will be able to:

- Discuss the historical perspective on biocontainment laboratories
- Identify the differences between BSL-1, BSL-2, BSL-3 and BSL-4 laboratories
- Become familiar with risk reduction techniques, including standard lab practices and personal protective equipment

- Identify the differences between Class I, Class II, and Class III biosafety cabinets
- Describe how to deal with biological wastes
- Discuss the procedures to properly react to biological emergencies
- Explain chemical safety and procedures to react properly to chemical emergencies

Course Number: BP-230**

0.4 CEU

Title: Introduction to Microbiology Essentials

Prerequisite(s): None

Summary: This course reviews the basic concepts microbiology and relates these concepts to risk assessment for biological safety.

Learning Outcomes: The participant will be able to:

- Define pathogenesis
- Discuss the various mechanisms by which microorganisms cause disease
- Discuss disease transmission
- Relate this information to biosafety issues

Course Number: BP-230L**

0.4 CEU

Course Title: Introduction to Microbiology Essentials – Lab

Summary: This course provides a hands-on experience in the microbiology laboratory covering microbiology basics of culture and identification, emergency response, and the use of containment equipment.

Learning Outcomes: The participant will be able to:

- Discuss and demonstrate bacterial culture, gram stain, and microscopy
- Discuss and demonstrate biological and chemical spill response
- Discuss emergency medical and fire response
- Discuss how to properly work in a biological safety cabinet and chemical fume hood

Course Number: BP-240**

0.4 CEU

Title: The Biological Risk Assessment Process

Prerequisite(s): None

Summary: An overview of risk assessment in the biomedical laboratory including a discussion of risk groups and biosafety levels, and considerations when performing laboratory risk assessments.

Learning Outcomes: The participant will be able to:

- Identify the differences between the four levels of risk groups
- Identify the characteristics of microorganisms that determine “risk” to the laboratorian
- Distinguish between risk group and biosafety level
- Identify biosafety issues to consider when conducting a risk assessment of organisms containing recombinant DNA

Course Number: NBB-340

0.4 CEU

Title: Emergency Planning and Response

Prerequisites: None

Summary: In–depth discussion of emergency response for medical, biological, and chemical emergencies and the process of developing an emergency plan.

Learning Outcomes: The participant will be able to:

- Identify the components of an emergency response plan
- Describe the steps in responding to emergencies
- Identify basic emergency response procedures for personal contamination, environmental exposure, and medical emergencies

- List the steps in spill response for biological and chemical emergencies
- Identify the steps in bioterrorism event response

Course Number: BP-525**

0.4 CEU

Title: Laboratory Safety Regulations, Standards and Guidelines

Prerequisite(s):

Summary: An overview of regulations and guidelines which apply to persons working in biomedical laboratories including OSHA hazard communication and bloodborne pathogens standards, CDC select agent rule and BMBL, and NIH recombinant DNA guidelines.

Learning Outcomes: The participant will be able to:

- Identify the regulators
- Describe which agencies administer specific regulations
- Identify the components of regulatory compliance
- Become familiar with regulations for various US government standards, including hazard communication, bloodborne pathogens, Select Agent rule, packaging and shipping, and others

Course Number: BP-700

Title: Biosafety and Biocontainment Practicum

Summary:

Learning Outcomes: The participant will be able to:

Under Development

Course Number: BP-710

Title: Biosafety and Biocontainment Final Project

Prerequisite(s):

Summary:

Learning Outcomes: The participant will be able to:

Under Development

Biosafety Professional
Elective Courses

Course Number: BP-220

0.4 CEU

Title: Biocontainment Laboratory Design

Prerequisite(s): None

Summary: In-depth investigation into the elements that culminate in the successful design of a biosafety laboratory. Topics include space planning, programming, functional design relationships, design constraints, and adherence to BMBL guidelines.

Learning Outcomes: The participant will be able to:

- Describe resources for biocontainment laboratory design
- Identify the design requirements for a biocontainment laboratory
- Identify design criteria differences between BSL-3 and BSL-4
- Describe design considerations by zone
- Identify design and construction issues

Course Number: BP-250

0.4 CEU

Title: Crisis and Emergency Risk Communication

Prerequisite(s): None

Summary: Being able to communicate effectively during an emergency is a core competency that requires planning, training, and evaluation. This course offers an introduction to developing a crisis and emergency risk communication plan, developing a crisis message, using case studies and hands-on exercises.

Learning Outcomes: The participant will be able to:

- Identify reasons for having a crisis and emergency risk communication plan
- Identify events that are likely to cause outrage
- Identify the five phases of a crisis communication life cycle and what needs to be done in each phase
- Identify pitfalls in crisis communications
- Define the 4-step message model
- Develop a crisis message

Course Number: BP-345

0.4 CEU

Title: Biocontainment Laboratory Security

Prerequisites: None

Summary: Discussion of key principles for securing biological agents, and developing a biosecurity tailored to a specific facility.

Learning Outcomes: The participant will be able to:

- Define and compare biological safety and biological security
- Describe the relationship between biological safety and biological security
- Provide the roof, four pillars, and foundation necessary for an effective biosecurity program
- Participate in the processes of Threat/Vulnerability Assessment and Risk Analysis
- Recognize biosecurity vulnerabilities
- Become familiar with agency specific requirements (DHHS, USDA, DOD, etc.)

Course Number: BP-350

0.4 CEU

Title: Aerobiology I

Summary: Review of the discipline of aerobiology, with discussion of relationship between laboratory practices and laboratory diseases that can be caused by microbial aerosols.

Learning Outcomes: The participant will be able to:

- Discuss the factors that influence airborne infection
- Define the terms bioaerosol, droplet nuclei, Brownian motion, and inertial impaction
- Describe the principal mechanisms of respiratory deposition of microbial particles
- Discuss how procedures in the laboratory can generate microbial aerosols
- Identify the various types of aerosol samplers and describe how they capture aerosol particles

Course Number: BP-365

0.4 CEU

Title: Aerobiology III: Aerobiological Sampling – Hands-on Lab Course Number: NBB- 365***

Prerequisite(s): NBB-350

Summary:

Learning Outcomes:

Under Development

Course Number: BP-370

0.4 CEU

Title: Engineering for Biocontainment Professionals

Prerequisite(s):

Summary:

Learning Outcomes:

Under Development

Course Number: BP-380

0.4 CEU

Title: Introduction to Animal Biocontainment

Prerequisites: NBB-160

Summary: Overview of biocontainment considerations and comparisons for various animal species with focus on large animal species or unconventional animal species including livestock and wildlife. Aspects of physical containment and biosafety principals are included.

Learning Outcomes: On successful completion, the participant will be able to:

- Apply biosafety and biocontainment paradigms to unique hazards and hazard mitigation

- Distinguish fundamental differences between laboratory biosafety and animal biosafety
- Apply additional risk assessment needs of animal biocontainment
- Describe animal welfare and animal use requirements

Course Number: NBB-500

0.4 CEU

Title: Agents of Bioterrorism

Prerequisite(s): None

Summary: This course provides an overview of bioterrorism and the agents of bioterrorism - their characteristics, diagnosis, and treatment. Descriptions of the Category A, B, and C agents are provided, including laboratory identification methods, symptoms, health effects, and treatments for diseases resulting from exposure to these agents.

Learning Outcomes: The participant will be able to:

- Describe what is meant by bioterrorism
- List commonly used agents of bioterrorism
- Discuss various laboratory methods used to identify agents of bioterrorism

Course Number BP – 515

0.4 CEU

Title: Packaging and Shipping Division 6.2 Hazardous Materials

Prerequisite(s): None

Title: Summary: This course discusses the regulatory aspects of shipping biohazardous materials as well as the procedures for proper packaging.

Learning Outcomes: The participant will be able to:

- Explain the regulatory agencies and requirements for packaging and shipping biological agents
- Discuss the responsibilities of the shipper
- Define, identify, and classify Dangerous Goods
- Explain the Identification and Shippers Declaration
- Identify types of packaging
- Identify and discuss training requirements and documentation

Operations and Maintenance Certificate Program

Operations and maintenance courses are designed for maintenance staff supporting the activities of BSL-2 and BSL-3 laboratories and have responsibilities for the operational systems of these laboratories. Completion of seven core courses and three elective courses in Operations and Maintenance will provide the participant with a Basic Level certificate. Completion of four advanced courses leads to an Advanced Level certificate. Subsequent enrollment in the Comprehensive Certificate Program, which includes a practicum in a biocontainment laboratory, and successful completion of a final exam, will provide the participant with a Comprehensive Certificate in Operations and Maintenance. In some cases, evidence of experience and competency can substitute for the Practicum.

Core courses must be taken from Operations and Maintenance course catalog at a Frontline Foundation sponsored training event, but elective and advanced courses may be taken from an approved provider (e.g. International Facilities Management Association, American Biological Safety Association, American Lab Animal Association). As an IACET Authorized Provider, Frontline Foundation offers CEUs for its programs that qualify under IACET guidelines. For more information, go to www.frontlinefoundation.org.

Core Courses

Course Number: OM-100

0.4 CEU

Title: Introduction to Biosafety and Biocontainment for Operations and Maintenance Professionals

Prerequisite(s):

Summary: Introduction to biocontainment laboratory philosophy and design intent. Explanation of the distinguishing characteristics between BSL-1, BSL-2, BSL-3 (high containment) and BSL-4 (maximum containment) laboratories.

Learning Outcomes: The participant will be able to:

- Develop working knowledge of contents of the BMBL 5th Edition
- Describe what is meant by biocontainment philosophy and design intent
- Discuss the characteristics of BSL-1, BS-2, BSL-3 & BSL-4 laboratories
- Explain the laboratory design process

Course Number: OM-110

0.4 CEU

Title: Fundamentals of Laboratory Mechanics

Prerequisite(s): NBB-100

Summary: Overview of basic requirements for biosafety laboratories including architectural and mechanical components, operational characteristics, and routine maintenance issues. Includes basic design parameters outlined in 5th edition of the BMBL.

Learning Outcomes: The participant will be able to:

- Define basic containment laboratory ventilation terms and ventilation equations
- Explain thermodynamic elements in a biocontainment laboratory
- Explain the psychometric properties of air
- Explain the principles of ventilation control and airflow
- Discuss lab pressure relationship requirements

Course Number: OM-120

0.4 CEU

Title: Laboratory Systems, Utilities and Maintenance I

Prerequisite(s): NBB-110

Summary: Review of BMBL guidelines for design and operation of biosafety laboratories. In-depth discussion of laboratory utility systems and system requirements including: electrical, vacuum, CO₂, nitrogen, compressed air, plumbing and waste processing, disinfection, and decontamination. Also covered are topics concerning back-up and redundant system requirements, chemical handling and storage, laboratory security procedures, and routine, planned and preventive maintenance issues.

Learning Outcomes: The participant will be able to:

- Explain how HEPA filters work
- Discuss biocontainment requirements for electrical, plumbing, security, and waste systems
- Describe lightning protection and emergency power systems
- Analyze laboratory layouts for personnel and product flow as well as airflow and pressure relationships

Course Number: OM-130

0.4 CEU

Title: Overview of Microbiology and Biosafety for Operations and Maintenance Professionals

Prerequisite(s):

Summary: Introduction to basic principles of microbiology and biosafety.

Learning Outcomes: The participant will be able to:

- Describe the chain of infection
- Discuss what is meant if someone says a 'bug' is pathogenic or non-pathogenic; virulent or non-virulent
- Describe the basic differences between bacteria, fungi, parasites, viruses and prions
- Define "Biosafety Level"

Course Number: OM-140*

0.4 CEU

Title: Laboratory Sterilization and Disinfection for Operations and Maintenance Professionals

Prerequisite(s):

Summary: Decontamination and sterilization requirements and practices in the biocontainment laboratory environment. Includes discussions of various disinfection systems, chemicals utilized in the disinfection process, chemical handling and storage requirements, and an overview of waste processing systems.

Learning Outcomes: The participant will be able to:

- Become familiar with the vocabulary of disinfection and sterilization
- Define disinfection and sterilization
- Identify two disinfectants that are likely to be used in your workplace
- Identify two methods of sterilization that may be encountered in your workplace
- Describe the chain of infection
- Identify the basic differences among bacteria, fungi, parasites, viruses and prions
- Identify the differences between pathogenic and non-pathogenic and virulent and non-virulent organisms

Course Number: OM-200

0.4 CEU

Title: Laboratory Systems, Utilities and Maintenance II

Prerequisite(s): NBB-120

Summary: In-depth discussion of architectural components of laboratory design and construction including material requirements and architectural fit and finish details; reading and understanding architectural and mechanical drawings; issues and concerns related to new construction versus renovated spaces; security and safety topics including fire protection and emergency response and preparedness; and maintenance record keeping requirements. Review of BMBL guidelines for design and operation of biosafety laboratories.

Learning Outcomes: The participant will be able to:

- Read and interpret architectural drawings
- Explain maintenance record keeping requirements

Course Number: OM-210

0.4 CEU

Title: Troubleshooting Laboratory HVAC, Filtration, and Utility Systems

Prerequisite(s): NBB-200

Summary: Troubleshooting laboratory system components and operation including architectural (seals, bioseals, finishes, doors, locking mechanisms), mechanical (air handling units, refrigeration systems, fans, filters, controls, BAS systems), electrical (power, lighting, low voltage control systems), and plumbing and waste systems (drains, small pipe utilities, waste processing systems).

Learning Outcomes: The participant will be able to:

- Troubleshoot architectural and engineering components of biocontainment labs to ensure continuous system performance
- Develop preventive maintenance programs for biocontainment laboratories

Operations and Maintenance
Elective Courses

Course Number: OM-220

0.4 CEU

Title: Biocontainment Laboratory Architecture & Design

Prerequisite(s):

Summary: In-depth investigation into the elements that culminate in the successful design of a biosafety laboratory. Topics include space planning, programming, functional design relationships, design constraints, and adherence to BMBL guidelines.

Learning Outcomes: The participant will be able to:

- Become familiar with resources for biocontainment laboratory design
- Identify the design requirements for a biocontainment laboratory
- Identify design criteria differences between BSL-3 and BSL-4
- Describe design considerations by zone
- Identify design and construction issues

Course Number: OM-300

0.4 CEU

Title: Emerging Issues in Biosafety and Biocontainment for O&M Professionals

Prerequisite(s): NBB-200

Summary: Panel discussion of the emerging issues in biosafety and biocontainment .

Learning Outcomes: The participant will be able to:

- Analyze emerging issues in biosafety and biocontainment
- Describe how these issues will affect operations and maintenance
- Explain how the OM staff person's role may be changed or affected.

Course Number: OM-310

0.4 CEU

Title: Laboratory Construction Issues

Prerequisite(s): NBB-110

Summary: Rigorous introduction to the construction issues surrounding biosafety containment laboratories. Issues and topics include construction methods, establishing air-tight seals, boundary/barrier penetrations, acceptable products and materials, etc.

Learning Outcomes: The participant will be able to:

Under Development

Course Number: OM-320

0.4 CEU

Title: Laboratory Commissioning and Certification

Prerequisite(s): NBB-110

Summary: Detailed study of the process of commissioning and certifying a biosafety laboratory.

Learning Outcomes: The participant will be able to:

- Explain the elements of commissioning and NIH certification
- Describe the roles and goals of commissioning
- Describe roles and goals of certification
- Describe how to perform FPT – Functional Performance Testing
- Discuss NIH Certification Acceptance Criteria

Course Number: OM-330

0.4 CEU

Title: Laboratory Systems: Continuity of Operations Planning

Prerequisite(s): NBB-110

Summary: Introduction to business continuance planning for biosafety laboratories. Discussion will include the benefits of developing a continuance of operations plan (COOP) and the structural elements that comprise such a plan. COOP scenarios will include environmental disasters, organized and/or deliberate disruption, loss of utilities and services, equipment and/or system failures, serious information security incidents, and other emergency situations.

Learning Outcomes: The participant will be able to:

- Describe several risk reduction techniques
- Describe how to perform risk assessment
- Explain how to develop failure scenarios
- Explain requirements of COOP
- Describe the benefits of developing a COOP
- Demonstrate understanding of structural elements of COOP
- Analyze various COOP scenarios

Course Number: OM-510

0.2 CEU

Title: Laboratory Blueprint Reading and Construction

Prerequisite(s):

Summary:

Learning Outcomes: The participant will be able to:

Under Development

Course Number: OM-535

0.2 CEU

Title: NIH Laboratory Design Guidelines

Prerequisite(s):

Summary:

Learning Objectives: The participant will be able to:

Under Development

Course Number: OM-600

Title: Operations and Maintenance Practicum

Prerequisite(s): All core courses, three elective courses (minimum)

Summary: Completion of 80 practicum hours in a biocontainment laboratory O&M work setting. The student may complete a series of short assignments or one or two longer work experiences. The student must provide a

completed Practicum Summary Sheet and include a Practicum Site Supervisor Form for each assignment completed, and develop a Final Practicum Report.

Learning Outcomes: The participant will be able to:

Under Development

Course Number: OM -610

Title: Operations and Maintenance Final Project

Prerequisite(s): All core courses, three elective courses (minimum), and practicum

Summary: Comprehensive case study involving all aspects of laboratory design, operation and maintenance. The case study materials given to the students may include floor plans, mechanical drawings, failure scenarios, etc.

Through this project the student will demonstrate his/her ability to problem solve, recognize potential hazards, respond to and resolve system failures in the context of operating and maintaining a modern biomedical laboratory.

Learning Outcomes: The participant will be able to:

Frontline Courses for the Clinical Laboratory Community, First Responders and Others

Title: Building and Maintaining a Biosafety Culture (1½ hr presentation)

Course focuses on the building blocks of a safety culture, describes how cultures change, and emphasizes the importance of investigating the milieu in which biosafety incidents occur. The course offers a fresh perspective on how to improve the biosafety and biosecurity within facilities.

At the completion of the course, participants will be able to:

- Describe key features of culture change
- Distinguish between human error and system error
- Describe how to develop system solutions

Title: Leading High Performance Teams (1 ½ hr presentation)

Course describes characteristics of a high performance teams, the roles of the leader and team members, the characteristics of high performance teams and the symptoms of dysfunction.

At the end of the course, participants will be able to

- Identify common team problems.
- Develop strategies for overcoming team dysfunctions.
- Describe the role of the leader

Title: Pandemic Flu Communication (1 ½ hr presentation or expanded 4 hr workshop)

Course discusses the principles of communicating in a crisis with special emphasis on pandemic influenza.

At the end of the course, participants will be able to

- Discuss the STARCC principle
- Describe how messages are judged
- Analyze problems involved in working with the media

Title: Pandemic Flu Preparation and Mitigation (1 ½ hr presentation or 4 hr workshop)

Course provides basic understanding of the approaches to pandemic preparation and mitigation. The information provided is designed for all healthcare professionals, civic leaders, and the general public.

Participant will be able to

- Describe the national strategy for containing a pandemic influenza
- Explain the Pandemic Severity Index
- Analyze biological, psychological, sociological reactions to a pandemic
- Discuss concept of community hardiness
- Identify issues of stigmatization

Title: Training Adults (1 hr)

Course focuses on principles of adult learning and provides tips for providing dynamic training. This presentation provides a practical overview of how to design and deliver effective adult education and training.

At the end of the course, participants will be able to

- Describe systems of instructional design
- Discuss principles of adult learning
- Describe different learning styles
- Explain barriers to training and strategies to overcome those barriers
- Develop ability to prepare, practice, and present

Title: Biosafety for Clinical Laboratories (1 ½ hr presentation or 4 hr workshop)

Course builds understanding of the 4 biosafety levels, describes how to select and use appropriate personal protective equipment, and the basic operation and use of the biological safety cabinet.

At the end of the course, participants will be able to:

- Describe the 4 Biosafety Levels.
- Describe how to conduct a biosafety risk assessment
- Be able to don and doff personal protective equipment
- Develop a checklist for using BSCs
- Discuss the responsibilities of clinical laboratories in outbreaks and acts of bioterrorism.

Title: Biosecurity for Clinical Laboratories (1 ½ hr presentation)

Course describes the relationship between biosafety and biosecurity, the purposes of biosecurity, and provides guidance for developing a biosecurity plan.

At the end of the course, participants will be able to

- List the elements of a biosecurity plan
- Describe 5 steps of biosecurity risk assessment
- Describe the impact of the Select Agent Rule on clinical laboratories
- Discuss why “Loose Lips don’t just sink ships”

Title: Biosafety/Biosecurity for High Containment Laboratories (4 hr)

Course describes the principles of biosafety and biosecurity for high containment laboratories.

Participants will be able to

- Describe the 4 biosafety levels and what is meant by enhanced levels
- Describe how to conduct a biosafety or biosecurity risk assessment
- Identify threats to biosecurity
- Describe the elements of a biosecurity plan

Title: Biocontainment Laboratories and the Community: In House, out House, what, when, why, how to speak (1 ½ hr presentation or 4 hr workshop)

Course describes the principles involved in speaking with the community and activists about laboratory facilities, safety issues and other concerns. Through examples and case studies, the participants are provided with the opportunity to discuss and analyze approaches that meet the needs of the their laboratory and the community.

At the end of the course, participants will be able to

- Describe why risk comparison are not usually effective in communicating risk
- List common questions that the media and public want to know
- Discuss strategies for dealing with angry people
- List the elements that promote effective communication
- Describe spokesperson characteristics
- List common spokesperson pitfalls

Title: How to Plan and Implement a Successful Table Top Exercise (4 hr workshop)

Course discusses principles of table top exercises—who, when, what, where, how, why.

During the workshop participants will participate in a model emergency preparedness and response table top, using a facilitated case study format.

At the end of the workshop, participants will be able to:

- Describe the purpose of table top exercises.
- List the key responders who should be invited to a table top exercise. preparedness and response table top exercise
- Describe how the information learned in a table to can be used to improve preparedness and response.

- List key components to assess during a table top exercise

Title Crisis Communication-to speak or not to speak (4 hr workshop)

Course discusses development and implementation of a risk communication plan, the importance of having a plan, how to use a 4-step model to build a crisis communication message and how to evaluate the message. Through case studies, participants develop messages for a variety of crises and receive guidance and feedback on their messages and strategies.

At the of the course, participants will be able to

- Describe reasons for having a crisis and emergency risk communication plan
- List tasks that should be accomplished during each phase of the crisis communication life cycle
- Discuss how to develop and evaluate a crisis message
- List the elements that foster successful communication and operational success.

Title: Emergency Communication for Leaders (1 ½ hr presentation)

Course focuses on the basics of emergency communication for leaders. Through video recordings of civic leaders who have been involved in a variety of crisis, first hand experience and lessons learned are shared. An overview of the principles of communicating in a crisis and the important of the actions and messages from leaders is shared.

Participants will be able to

- Explain **why** communication and decision making in a crisis is different
- List six elements that kill operational success
- Describe panic and risk perception
- Discuss what the media will ask first

Title: Managing Biosafety: Facilitating Incident Reporting (1 ½ hr presentation)

The biosafety community has been wrestling with how to increase reporting of biosafety incidents and near misses. This course focuses on the role of biosafety management in promoting incident reporting.

Participant will be able to

- Describe the role of safety communication
- Analyze how to achieve compliance with correct safety behaviors
- Discuss the role of contextual behaviors
- List examples of general safety failure types

Other classroom general biosafety courses:

Title: Introduction to Laboratory Practice – General Information

This course offers a general introduction to laboratory practice for O&M personnel and new laboratory employees. On successful completion of this course, the participant will be able to:

- Describe basic laboratory management and its importance in laboratory safety
- Describe what you need to know before entering a lab

Title: Introduction to Laboratory Practice – Risk Assessments

Course provides an overview of the development of risk assessments for O&M staff and other new employees. Upon successful completion of this course, the participant will be able to:

- Describe what is meant by “risk” in the laboratory
- Distinguish between “Risk Group” and “Biosafety Level”
- Describe how, when and by whom a risk assessment is performed

Title: Introduction to Laboratory Practice - Standard Operating Procedures

Course provides participant an understanding of the importance of standard operating procedures and how to develop useful SOP documents. Upon successful completion of this course, the participant will be able to:

- Describe what is meant by an SOP
- Describe the benefits of SOPs
- Demonstrate the process for developing an SOP

Title: Introduction to Laboratory Practice – Laboratory Biosecurity

Course provides a primer on laboratory biosecurity requirements and techniques. On successful completion of this module, the participant will be able to:

- Define biological safety vs. biological security
- Describe the relationship between biological safety & biological security
- Describe an effective Biosecurity Program
- Discuss biosecurity vulnerabilities

Title: Laboratory PPE

This course offers an overview of the types of PPE used in the laboratory. On successful completion of the course, the participant will be able to:

- Describe the importance of PPE for entering BSL2 and BSL3 laboratories
- Describe the PPE required to enter BSL2 and BSL3 laboratories
- Demonstrate the proper procedure for donning and doffing PPE when entering and exiting BSL2 and BSL3 laboratories

Online Courses:

Introduction to Biosafety and Biocontainment for Non-Laboratorians

This course is an introduction to biocontainment laboratories for people who work near or who may need to enter these laboratories on occasion. The course describes the types of work done in biocontainment environments and how these labs are constructed and operated to protect both the public and lab employees. On successful completion of the course, participants will be able to:

- Describe a biohazard
- Discuss the characteristics of BSL- 1, BSL-2, BSL-3, and BSL-4 laboratories
- Discuss standard laboratory practices, and
- Describe how to safely enter and exit a biocontainment laboratory

Laboratory Safety Boot Camp

Laboratory Safety Boot Camp is a program for laboratorians, researchers, and biosafety professionals who have need for specific knowledge in domains including biosafety, operations and maintenance and emergency response topics. Completion of two basic courses, and eight advanced courses supplies a Laboratory Safety Boot Camp Certificate. Each course is 2- 4 hours long and awards 0.2 – 0.4 CEUs.

- **Basic Skills**
 - Laboratory Safety
 - Biosafety
 - Chemical Safety
 - Disinfection & Decontamination
 - Emergency Response
 - Regulations & Guidelines
 - Microbiology Principles
- **Advanced Skills**
 - **General**
 - Communication During Crisis
 - Program Management
 - Laboratory Security
 - Risk Assessment
 - Laboratory Assessments & Inspections
 - **Laboratory**
 - Hands-on Laboratory Skills & Practice
 - PPE
 - Donning & doffing
 - Respirators
 - Personnel Isolation Suit
 - BSCs & Chemical Fume Hoods
 - Bio/Chem Emergency Response
 - Autoclaves
 - VHP/CD Generators
 - Microscopy for Laboratorians
 - Radiation Safety

- Agents of Bioterrorism
- Packaging & Shipping Division 6.2 Hazardous Materials
- Respirator Selection & Use
- Lab Animal Practice
- Bio/Chem Terrorism
- Aerobiology
- **Engineering**
 - Laboratory Design, Construction & Function
 - Laboratory Commissioning & Certification
 - Laboratory Mechanics
 - Laboratory Systems & Utilities
 - Laboratory HVAC
 - Laboratory Troubleshooting & Continuity of Operations