



BIOTECH PRIMER'S COURSE SNAPSHOT

Biosafety

On-Demand, Online Classes

Learn anywhere, at your own pace. Designed for individuals, customized for organizations.

Laboratory Safety Best Practices

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LEVELS

Each on-demand, online class is given a level to help individuals choose the appropriate class based on their background and needs. For all level 2 and 3 classes a suggested prerequisite will be given but is not mandatory to take.

Level 1: Foundational For individuals new to laboratory safety procedures and for those who need a refresher on the fundamental safety procedures.

Level 2: General For individuals who possess a general understanding of laboratory safety procedures.

Level 3: Advanced For individuals who possess a deep understanding of laboratory safety procedures.

PRICING

Each individual online class: **\$150** BIO member price: **\$120**

Bulk discount pricing:

Number of total classes	Discount per class	Price per class
10-20*	25%	\$112
21-100	30%	\$105
101-250	40%	\$90
251-500	50%	\$75
500 and up	70%	\$45

**For BIO member companies only*

CORPORATE ACCOUNTS

Need to train an entire department or company? We offer two options.

Enterprise: Manage your own company account with our Learning Management System (LMS). Assign classes and view individual's progress. Enterprise is intuitive and easy-to-manage.

LTI Bridge: Connect your organizations LMS to Biotech Primer's LMS. Individuals log into your company's LMS and take our classes.

Contact Stacey Hawkins at stacey@biotechprimer.com to learn more..

Biosafety Basics

68-MINUTE ON-DEMAND, ONLINE CLASS | LEVEL 1

OVERVIEW

Biosafety Basics provides the introductory framework to the practices and principles when working with infectious biological agents. Focus is placed on an introduction to infectious agents, assessment of biological hazards and risks, overview of laboratory safety, risk mitigation via personal protective equipment and biosafety cabinets, program management, and biosafety guidelines and regulations.

Five Takeaways:

1. Explain the risk factors involved in working with a biological agents.
2. Explain why personal protective equipment (PPE) is used, and what PPE is appropriate for the work area.
3. Describe the differences between a biological safety cabinet (BSC), a fume hood, and a laminar flow clean air center.
4. List the basic design differences between Biosafety Labs (BSL)-1, 2, 3,
5. Explain how the various Federal regulatory agencies affect the practice of biosafety.

AGENDA

- **Introduction to Infectious Agents** identifies certain diseases caused by prions, viruses, bacteria, fungi, and parasites and explains the different ways that diseases can be transmitted.
- **Assessing Biological Hazards and Biorisks** explains the risk factors involved when working with a biological agent and discusses how an infection can be prevented by modifying the agent itself or how that agent is handled.
- **Laboratory Safety Overview: Common Lab Hazards and Basic Safety** Thinking identifies the hierarchy of controls for working with biological hazards, underlines the difference between engineering controls and work practice controls, and explains how to eliminate or replace sharps in the workplace.
- **Biorisk Mitigation: Personal Protective Equipment (PPE)** first explains why personal protective equipment is used. Next, it discusses the limitations of each PPEs, and discusses how to select appropriate PPE based on tasks, work area, temperature, organisms, and chemicals used. Lastly, this section explains the difference between masks and respirators and which respirator is appropriate for a certain application.

continued

- **Biorisk Mitigation: Biological Safety Cabinets (BSC)** defines the term primary containment and explains the difference between a biological safety cabinet (BSC), a fume hood, and a laminar flow clean air center.
- **Biorisk Mitigation: Laboratory Facility Considerations** explains how the risk group of an organism influences the design of the laboratory where it will be handled, describes how a risk group corresponds to the biosafety level of a facility, and finally elucidates the design differences between Biosafety Labs (BSL) – 1, 2, 3, and 4.
- **Biorisk of Bioaerosols** first explain bioaerosols, how they can be present in the workplace, and the types of laboratory manipulation that can produce an aerosol. Next, the section discussed why aerosols present a high risk to workers, and lastly compares the differences between a disease spread by droplets and one spread by the aerosol or droplet nuclei route.
- **Biosafety Program Management** first lists the elements of a good biosafety program and the basic topics that a biosafety manual should cover. Second, the section discusses why an occupational health program is important and what types of concerns should be addressed by this program. Third the section lists the responsibilities of the Institutional Biosafety Committee (IBC). Lastly, the section explains when a biosafety officer is required per NIH guidelines and what procedures an emergency response plan should cover.
- **Biosafety Regulations and Guidelines** lists some of the primary US biosafety-related regulations and explains how the various federal regulatory agencies affect the practice of biosafety.

Introduction to Biosafety Cabinets

44-MINUTE ON-DEMAND, ONLINE CLASS | LEVEL 1

OVERVIEW

Introduction to Biosafety Cabinets provides an overview of biosafety cabinets (BSCs), including different types, safe operation and work practices, proper decontamination methods, and a review of the NSF/ANSI 49 Standard.

Five Takeaways:

1. Define the function of a biosafety cabinet (BSC).
2. Describe the types of BSCs and explain why they are different.
3. Define what class II and III cabinets protect.
4. State how often a BSC should be certified.
5. Describe the primary method of decontamination and list the types of decontaminants approved by ANSI.

AGENDA

- **Air Filtration** defines the function of a biosafety cabinet (BSC), explains the features and functions of a HEPA filter, and lists the differences in retaining particle sizes for HEPA, ULPA, and SULPA filters.
- **Types of Biosafety Cabinets** describes the types of BSCs and explains why they are different.
- **Working in the Biosafety Cabinet** defines what class II and class III cabinets protect and explains why UV lights are not recommended for use in a BSC.
- **NSF/ANSI 49** explains how often BSCs should be certified and describes the different functional tests for BSCs.
- **Biosafety Cabinet Decontamination** first describes the primary method of decontamination, lists the types of decontaminants approved by ANSI, and describes the two components that are critical during any method of decontamination. Lastly, this section explains what indicators are used to validate decontamination.

Basic Disinfection Practices for Tissue Culture Laboratories

40-MINUTE ON-DEMAND, ONLINE CLASS | LEVEL 1

OVERVIEW

Basic Disinfection Practices for Tissue Culture Laboratories introduces disinfection methods for laboratories working with infectious agents. Emphasis is placed on common sources of contamination, choosing the right type of disinfectant, best practices for tissue culture laboratories, and how to clean the laboratory and equipment.

Five Takeaways:

1. Identify the biosafety level to be used handling human tissues.
2. Describe what personal protective equipment should be used in different scenarios.
3. Define which laboratory processes require a written standard operating procedure.
4. Explain how often floors, bench-tops, and other laboratory equipment can be cleaned/ disinfected.
5. Describe the appropriate means to clean/dispose of contaminated flasks, bottles, trays, etc.

AGENDA

- **Introduction: Tissue Culture and Contamination** identifies the biosafety level to be used when handling human tissues and describes how most contamination happens in a tissue culture lab.
- **Choosing a Disinfectant** defines decontamination, identifies where to find a list of approved disinfectants, and describes the appropriate use of alcohol for cleansing.
- **Best Practices for Tissue Culture Laboratories** describes what personal protective equipment (PPE) should be used in different scenarios and explains methods for decreasing/ eliminating cross contamination.
- **Standard Operating Procedures** defines which laboratory processes require a written standard operating procedure and discusses special considerations of laboratory water baths as sources of contamination.
- **Cleaning and Waste Disposal** explains how often floors, bench-tops, and other laboratory equipment should be cleaned/disinfected and describes the appropriate means of cleansing/ disposing of contaminated flasks, bottles, trays, etc.

Working With Animals

30-MINUTE ON-DEMAND, ONLINE CLASS | LEVEL 1

OVERVIEW

Working With Animals focuses on the special considerations of working safely with laboratory animals. A detailed look into animal laboratory equipment and animal laboratory best practices will be covered.

Four Takeaways:

1. Identify hazards associated with work involving biohazards in the vivarium (animal laboratory).
2. Describe the Animal Biosafety Levels as described in the CDC's Biosafety in Microbiological and Biomedical Laboratories (BMBL) 5th edition.
3. List the engineering controls and practices used within the vivarium.
4. Explain safe operating practices in the vivarium.

AGENDA

- **Animal Biohazard Considerations** identifies hazards associated with work involving biohazards in the vivarium (animal laboratory).
- **Animal Facilities** explains the Animal Biosafety Levels as described in the CDC's Biosafety in Microbiological and Biomedical Laboratories (BMBL) 5th edition and identifies the engineering controls and practices used within the vivarium.
- **Emergency Procedures** explains safe operating practices in the vivarium.

Elements of a Biorisk Management Program

53-MINUTE ON-DEMAND, ONLINE CLASS | LEVEL 1

OVERVIEW

Elements of a Biorisk Management Program summarizes the major practices and principles, as well as the tools necessary for organizations to integrate biological safety and biorisk management techniques into their existing laboratory operations and programs.

Five Takeaways:

1. Describe the early steps involved in developing a biosafety program.
2. List the roles of various personnel in a Biorisk Management Program.
3. Implement a biosafety or Biorisk program in your institution.
4. Identify laboratory operations that pose potential biological risks.
5. Explain why procedures need to be established in biosafety programs.

AGENDA

- **Starting a Biosafety Program** describes the early steps involved in developing a biosafety program.
- **Operations** describes the roles various personnel working in an occupational health program, including biosafety committee members and biosafety officers, laboratory, facility, and security management workers, as well as lab workers and animal care workers.
- **Implementation** explains the implementation of a biosafety or Biorisk program in your institution.
- **Operation Control** identifies the laboratory operations that pose potential biological risks and explains why procedures need to be established in biosafety programs.

NIH Recombinant DNA Compliance

44-MINUTE ON-DEMAND, ONLINE CLASS | LEVEL 1

OVERVIEW

NIH Recombinant DNA Compliance highlights the history and current legislative initiatives for NIH compliance, how these may affect your institution and the operation of the Institutional Biosafety Committee (IBC), expectations of Principal Investigators, awareness of the IBC and its responsibilities, exempt vs. non-exempt experiments, as well as, what to expect during an NIH site visit/audit or facility inspection, and common compliance challenges. It also provides a detailed look at the purpose, composition, responsibilities, and management of IBCs. Requirements set forth by the NIH and other relevant institutions will be covered.

Five Takeaways:

1. Define recombinant DNA.
2. Explain why the NIH Guidelines for Research Involving Recombinant DNA Molecules (NIH Guidelines) were established and how have the NIH Guidelines changed over the past 40 years.
3. Lists the scope of the NIH guidelines and who is subject to these guidelines.
4. Lists the types of protocols the IBC is required and not required to review.
5. Describe what the NIH will audit during a site visit.

AGENDA

- **What Is Recombinant DNA?** This section defines recombinant DNA, describes how recombinant DNA is made to make genetically engineered cells, and explains how genetically engineered cells are used.
- **History of the NIH Guidelines for Research Involving Recombinant DNA Molecules** explains why the NIH Guidelines for Research Involving Recombinant DNA Molecules (NIH Guidelines) were established and how the NIH Guidelines have changed over the past 40 years.
- **Basics of Institutional Biosafety Committees (IBC)** lists the scope of the NIH guidelines and who is subject to these guidelines. Next, this section describes the expectations of the Principal Investigator (PI) and the Institutional Biosafety Committee (IBC) in terms of the NIH Guidelines.

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- **Sections of the NIH Guidelines** lists the what the different appendices cover within the NIH Guidelines.
- **IBC Review of Infectious Agents Protocols** lists the types of protocols the IBC is required and not required to review.
- **Site Visits by NIH** explains what the NIH will audit during a site visit and lists the components of a robust biosafety program.

OSHA Bloodborne Pathogens Regulations

50-MINUTE ON-DEMAND, ONLINE CLASS | LEVEL 1

OVERVIEW

OSHA Bloodborne Pathogens Regulations details current OSHA Bloodborne Pathogen Regulations, how to determine if your organization is subject to its laws, and how to properly integrate them into existing medical surveillance, health, and safety programs.

Five Takeaways:

1. Explain how people become infected by bloodborne pathogens.
2. Identify products that are potentially biohazardous.
3. State the OSHA Bloodborne Pathogens Standards and the responsibilities of employers and employees regarding these standards.
4. Describe standard microbiological work practices that should be used.
5. Describe written procedures and documented training for personnel with regard to bloodborne pathogens and post-exposure requirements.

AGENDA

- **OSHA Biosafety Basics** explains how people can become infected by bloodborne pathogens and identifies products that are potentially biohazardous.
- **OSHA Bloodborne Pathogens** Standard lists the OSHA Bloodborne Pathogens Standards and explains the responsibilities and expectations of both employers and employees stated by the OSHA Bloodborne Pathogens Standards.
- **OSHA Work Practices** describes the standard microbiological work practices that should be used, discusses the special considerations involving sharps, and explains how to choose and appropriate disinfectant.
- **OSHA Emergency and Occupational Health Issues** describes post-exposure requirements as well as written procedures and documented training for personnel.