



# Biochemicals and Gram Negative Organism ID

## Basic Microbiology Curriculum

Sponsored by Centers for Disease Control and Prevention, Division of Laboratory Systems

### | DESCRIPTION |

This eLearning course is designed to familiarize laboratorians with how to read a Gram stain, colonial characteristics, and biochemical tests used to identify Gram negative microorganisms as well as commonly used testing algorithms. The course will only cover aerobic microorganisms, those that grow in the presence of oxygen.

### | AUDIENCE |

New or existing public health and clinical laboratorians, who have a science background, are entering or reentering the microbiology field and who need training in biochemical test methods and Gram negative microorganism identification essential for performing job requirements.

### | OBJECTIVES |

At the conclusion of this program, the participant will be able to:

- Identify different types of bacterial morphology seen on a Gram stain
- Identify different types of colonial characteristics
- Use flowcharts and identification charts to identify some common aerobic Gram negative microorganisms
- Associate various biochemical tests with their correct applications
- Interpret the results of biochemical methods

### | REGISTRATION |

#### FREE REGISTRATION

- Locate the course online at [www.cdc.gov/labtraining](http://www.cdc.gov/labtraining)
- Follow the link to register for the course in TRAIN
- If you have difficulty with the online registration process, please email [labtraining@cdc.gov](mailto:labtraining@cdc.gov)
- For additional program information, email [labtraining@cdc.gov](mailto:labtraining@cdc.gov) or call (404) 498-6022

### | CONTINUING EDUCATION |

The Centers for Disease Control and Prevention, Division of Laboratory Systems is approved as a provider of continuing education programs in the clinical laboratory sciences by the ASCLS P.A.C.E.® Program. This course is approved for **1.0** contact hours.

### | SPECIAL NEEDS |

Course content is closed captioned where applicable and optimized for a screen reader.

P.A.C.E.® Course Number: 288-021-18

## Algorithms in Diagnostic Molecular Parasitology

Sponsored by the Division of Parasitic Diseases and Malaria and the Laboratory Training Branch, Centers for Disease Control and Prevention

### FREE Workshops

To apply use the application links below.

#### Algorithms in Diagnostic Molecular Parasitology, September 25-27, 2019, Atlanta, GA

**Description:** Certain aspects of parasitic agents present unique considerations for the use of DNA-based methods for diagnostic parasitology. Techniques and processes that are successfully used to identify bacteria and viruses may not be applicable to parasites. In addition, the efficient use of molecular testing in diagnostic parasitology should be based on robust algorithms. This three-day, hands-on laboratory workshop will provide the tools necessary to make evidence-based decisions relative to implementing and performing molecular methods to diagnose parasitic diseases.

**Objectives:** At the conclusion of this program, the participant will be able to:

- Select algorithms for using molecular techniques in the parasitology laboratory for investigating and diagnosing parasitic diseases.
- Recognize the usefulness and limitations of different methods in diagnostic parasitology.
- Identify specimen preservatives and DNA extraction techniques suitable for diagnostic parasitology.
- Describe the importance of proper validation and use of quality controls to ensure accurate test results.
- Distinguish new technologies, such as multiplex panels and advanced molecular detection methods, in diagnostic parasitology.
- Perform DNA extraction and real-time PCR techniques for the detection of parasitic disease agents, including *Entamoeba spp.*, *Babesia microti*, *Plasmodium spp.* and *free-living amoebas*.

**Audience:** This beginner-level, hands-on workshop is intended for parasitologists, molecular biologists, or other professionals with some experience in performing PCR. Candidates for this class must currently perform diagnostic molecular techniques or be considering the implementation of diagnostic molecular parasitology in the future. Availability limited to 16 spaces.

**Application:** The application to attend is to be completed online by the deadline of **July 8, 2019**

#### NEW TWO-PART APPLICATION PROCESS!

1. Complete the application form [online](#) by **July 8, 2019**
2. Submit a brief **CV or resume** highlighting your experience in the area of laboratory testing relevant to this course by **July 8, 2019**. Email CV or resume to [labtraining@cdc.gov](mailto:labtraining@cdc.gov). Type "288-007-19 ALGORITHMS IN DIAGNOSTIC MOLECULAR PARASITOLOGY" in the line of the email. (Click this [link](#) for an example of a brief CV).

If you are unable to complete the application online, notify Karen Ching at 404-498-6403 or email [kching@cdc.gov](mailto:kching@cdc.gov). Only completed applications received by the deadline will be considered. Participants will be selected according to the applicants' job description, experience, and responsibilities. Notification of acceptance status will be sent via email by **July 16, 2019**.

#### Continuing Education

The Centers for Disease Control and Prevention, Division of Laboratory Systems, Laboratory Training and Services Branch is approved as a provider of continuing education programs in the clinical laboratory sciences by the ASCLS P.A.C.E.® Program. This course is approved for 18.5 **contact** hours.

# BIOTHREAT PREPAREDNESS TRAINING FOR SENTINEL LABORATORIES - *Bacillus anthracis*

## Description

This module has been developed to provide clinical laboratory scientists with information about the laboratory identification of *Bacillus anthracis*.

The goal is to assist clinical laboratory scientists in better recognizing potential bioterror agents they might encounter during routine laboratory work-ups of sputum, blood and aspirate/biopsy specimens.

Laboratory managers may consider using this course:

- To assess staff competency in performing laboratory procedures accurately, and
- To determine if staff are referring specimens for test confirmations correctly.

## Objectives

At the conclusion of this program, the participant will be able to:

- Describe laboratory tests for presumptive identification of *Bacillus anthracis*.
- Describe how to rule out or refer presumptive organisms for *B. anthracis*.
- Discuss the role of the LRN sentinel laboratory in detection of *B. anthracis*.

## Registration - Free Registration

- Locate the course online at [www.cdc.gov/labtraining](http://www.cdc.gov/labtraining)
- Follow the link to register for the course in TRAIN
- If you have difficulty with the online registration process, please email [labtraining@cdc.gov](mailto:labtraining@cdc.gov)
- For additional program information, email [labtraining@cdc.gov](mailto:labtraining@cdc.gov) or call (404) 498-6022

## Continuing Education

This course is being revised, so P.A.C.E® credits are not offered at this time. You may receive a course completion certificate without P.A.C.E® credits. The revised course will offer P.A.C.E® credits.

## Special Needs

Course content is closed captioned where applicable and optimized for a screen reader.

For a complete list of courses, visit [www.cdc.gov/labtraining](http://www.cdc.gov/labtraining)

# BIOTHREAT PREPAREDNESS TRAINING FOR SENTINEL LABORATORIES - *Brucella* spp.

## Description

This module has been developed to provide clinical laboratory scientists with information about the laboratory identification of *Brucella* species.

The goal is to assist clinical laboratory scientists in better recognizing potential biothreat agents they might encounter during routine laboratory work-ups of sputum, blood and aspirate/biopsy specimens.

Laboratory managers may consider using this course:

- To assess staff competency in performing laboratory procedures accurately, and
- To determine if staff are referring specimens for test confirmations correctly.

## Objectives

At the conclusion of this program, the participant will be able to:

- Describe laboratory tests for identification of *Brucella* spp.
- Describe how to rule out or refer isolates for *Brucella* spp. using standardized laboratory protocols.
- Discuss the role of the sentinel laboratory in bioterrorism response.

## Registration - Free Registration

- Locate the course online at [www.cdc.gov/labtraining](http://www.cdc.gov/labtraining)
- Follow the link to register for the course in TRAIN
- If you have difficulty with the online registration process, please email [labtraining@cdc.gov](mailto:labtraining@cdc.gov)
- For additional program information, email [labtraining@cdc.gov](mailto:labtraining@cdc.gov) or call (404) 498-6022

## Continuing Education

This course is being revised, so P.A.C.E® credits are not offered at this time. You may receive a course completion certificate without P.A.C.E® credits. The revised course will offer P.A.C.E® credits.

## Special Needs

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For a complete list of courses, visit [www.cdc.gov/labtraining](http://www.cdc.gov/labtraining)

# BIOTHREAT PREPAREDNESS TRAINING FOR SENTINEL LABORATORIES - *Burkholderia* spp.

## Description

This module has been developed to provide clinical laboratory scientists with information about the laboratory identification of *Burkholderia* spp.

The goal is to assist clinical laboratory scientists in better recognizing potential bioterror agents they might encounter during routine laboratory work-ups of sputum, blood and aspirate/biopsy specimens.

Laboratory managers may consider using this course:

- To assess staff competency in performing laboratory procedures accurately, and
- To determine if staff are referring specimens for test confirmations correctly.

## Objectives

At the conclusion of this program, the participant will be able to:

- Summarize the basic epidemiology and ecology of *Burkholderia* spp.
- List important aspects of biosafety in working with *Burkholderia* spp. in the laboratory.
- Outline the role of the LRN sentinel laboratory in the detection of *Burkholderia* spp.
- Apply various laboratory tests that are used to presumptively identify *Burkholderia* spp.
- Use sentinel laboratory protocols to Rule Out or Refer isolates for the identification of *Burkholderia* spp.

## Registration - Free Registration

- Locate the course online at [www.cdc.gov/labtraining](http://www.cdc.gov/labtraining)
- Follow the link to register for the course in TRAIN
- If you have difficulty with the online registration process, please email [labtraining@cdc.gov](mailto:labtraining@cdc.gov)
- For additional program information, email [labtraining@cdc.gov](mailto:labtraining@cdc.gov) or call (404) 498-6022

## Continuing Education

This course is being revised, so P.A.C.E® credits are not offered at this time. You may receive a course completion certificate without P.A.C.E® credits. The revised course will offer P.A.C.E® credits.

## Special Needs

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For a complete list of courses, visit [www.cdc.gov/labtraining](http://www.cdc.gov/labtraining)

# BIOTHREAT PREPAREDNESS TRAINING FOR SENTINEL LABORATORIES - *Francisella tularensis*

## Description

This module has been developed to provide clinical laboratory scientists with information about the laboratory identification of *Francisella tularensis*.

The goal is to assist clinical laboratory scientists in better recognizing potential biothreat agents they might encounter during routine laboratory work-ups of sputum, blood and aspirate/biopsy specimens.

Laboratory managers may consider using this course:

- To assess staff competency in performing laboratory procedures accurately, and
- To determine if staff are referring specimens for test confirmations correctly.

## Objectives

At the conclusion of this program, the participant will be able to:

- Describe laboratory tests for presumptive identification of *Francisella tularensis*.
- Describe how to rule out or refer presumptive organisms for *F. tularensis*.
- Discuss the role of the sentinel laboratory in detection of *F. tularensis*.
- Describe the basic epidemiology and ecology of *F. tularensis* in the U.S. including animal reservoirs, vectors, and transmission cycles.

## Registration - Free Registration

- Locate the course online at [www.cdc.gov/labtraining](http://www.cdc.gov/labtraining)
- Follow the link to register for the course in TRAIN
- If you have difficulty with the online registration process, please email [labtraining@cdc.gov](mailto:labtraining@cdc.gov)
- For additional program information, email [labtraining@cdc.gov](mailto:labtraining@cdc.gov) or call (404) 498-6022

## Continuing Education

This course is being revised, so P.A.C.E® credits are not offered at this time. You may receive a course completion certificate without P.A.C.E® credits. The revised course will offer P.A.C.E® credits.

## Special Needs

Course content is closed captioned where applicable and optimized for a screen reader.

For a complete list of courses, visit [www.cdc.gov/labtraining](http://www.cdc.gov/labtraining)

## DIAGNOSTIC PARASITOLOGY I: INTESTINAL ORGANISMS & ARTHROPODS

Sponsored by the Division of Parasitic Diseases and Malaria and the Training and Workforce Development Branch, Centers for Disease Control and Prevention

### FREE Workshops

See attached brochures to apply or use the application links below:

**DIAGNOSTIC PARASITOLOGY I: INTESTINAL ORGANISMS & ARTHROPODS, Oct. 22-25, 2019, Atlanta, GA**

**Description:** Diagnosis of most parasitic infections is based upon the morphologic characteristics of eggs and larvae of helminths, cysts and trophozoites of protozoa, and immature and adult arthropods. Therefore, it is necessary to correctly process, examine, detect, and identify parasitic organisms from clinical specimens. During this four-day, intermediate-level, hands-on workshop, faculty from the Centers for Disease Control and Prevention will instruct participants in how to detect and identify medically important intestinal helminths, intestinal protozoa, and arthropods.

**Objectives:** At the conclusion of this program, the participant will be able to:

- Describe morphologic characteristics of intestinal helminths, intestinal protozoa, and arthropods of public health concern.
- Microscopically detect and identify helminths and protozoa.
- Recognize the common genera and species of medically important arthropods.
- Detect *Cyclospora cayetanensis* using fluorescence microscopy.
- Discuss the process of clearing or staining proglottids with lactophenol cotton blue or India ink.

**Audience:** This intermediate-level, hands-on program is intended for laboratorians who work in public health or clinical microbiology laboratories, are proficient using a microscope, and have experience identifying intestinal parasites and arthropods.

### NEW TWO-PART APPLICATION PROCESS!

Both parts must be submitted by **July 30, 2019** to be considered.

1. Complete the application form [online](#) by **July 30, 2019**.
  2. Submit a brief **CV or resume** highlighting your experience in the area of laboratory testing relevant to this course by **July 30, 2019**. Email CV or resume to [kching@cdc.gov](mailto:kching@cdc.gov). Type "288-008-19 DIAGNOSTIC PARASITOLOGY I: INTESTINAL ORGANISMS & ARTHROPODS" in the subject line of the email.
- Click this [link](#) for an example of a brief CV.
  - Participants will be selected according to the applicants' job description, experience, and responsibilities.
  - Notification of acceptance status will be sent via email by **Aug. 8, 2019**.

If you are unable to complete the application online, notify Karen Ching at 404-498-6403 or email [kching@cdc.gov](mailto:kching@cdc.gov).

### Continuing Education

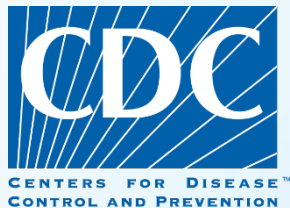
The Centers for Disease Control and Prevention, Division of Laboratory Systems is approved as a provider of continuing education programs in the clinical laboratory sciences by the ASCLS P.A.C.E.® Program. This course is approved for **24** contact hours.



# LABORATORY CONTINUITY OF OPERATIONS (COOP) PLANNING COURSE

AN ONLINE LEARNING COURSE  
AVAILABLE ON [WWW.CDC.TRAIN.ORG](http://WWW.CDC.TRAIN.ORG)

Sponsored by the  
Division of Laboratory Systems,  
Center for Surveillance, Epidemiology and Laboratory Services,  
Centers for Disease Control and Prevention





## DESCRIPTION

Continuity of Operations (COOP) plans ensure continued performance of essential functions under a broad range of circumstances. The Laboratory Continuity of Operations (COOP) Planning Course is designed to provide guidance and the tools necessary for the development of laboratory continuity plans. A COOP plan is a living document and will likely need to be revised over time. Since COOP planning can vary based on need, this course will outline one scenario.

This basic-level eLearning course will provide the purpose and components of a laboratory COOP plan. Topics covered include planning objectives and considerations that apply when developing a COOP plan, identifying factors to consider when selecting alternate work facilities, and maintenance cycle and revisions of a COOP plan.

## AUDIENCE

This online course is designed for public health and clinical laboratory managers and staff, safety professionals and persons interested or required to develop a laboratory continuity plan.

## SPECIAL NEEDS

Course content is closed captioned, where applicable, and optimized for a screen reader.

## FREE REGISTRATION

- Locate the course online at [www.cdc.gov/labtraining](http://www.cdc.gov/labtraining)
- Follow the link to register for the course in TRAIN
- If you have difficulty with the online registration process, please email [labtraining@cdc.gov](mailto:labtraining@cdc.gov)



## OBJECTIVES

When you complete this course, you will be able to:

- Identify the purpose of a COOP plan.
- Identify the components of a COOP plan.
- Identify the planning objectives and considerations that apply when developing a COOP plan.
- Identify factors to consider when selecting alternate work facilities.
- Describe the maintenance cycle and revisions of a COOP plan.

## CONTINUING EDUCATION

Continuing education credits are not available for this course currently. You may download a certificate from the CDC upon completing this course.

For a complete list of courses, visit [www.cdc.gov/labtraining](http://www.cdc.gov/labtraining).

## BIOTHREAT PREPAREDNESS TRAINING FOR SENTINEL LABORATORIES - *Yersinia pestis*

### Description

This module has been developed to provide clinical laboratory scientists with information about the laboratory identification of *Yersinia pestis*.

The goal is to assist clinical laboratory scientists in better recognizing potential biothreat agents they might encounter during routine laboratory work-ups of sputum, blood and aspirate/biopsy specimens.

Laboratory managers may consider using this course:

- To assess staff competency in performing laboratory procedures accurately, and
- To determine if staff are referring specimens for test confirmations correctly.

### Objectives

At the conclusion of this program, the participant will be able to:

- Summarize the basic epidemiology and ecology of *Yersinia pestis*.
- List important aspects of biosafety in working with *Y. pestis* in the laboratory.
- Outline the role of the LRN sentinel laboratory in the detection of *Y. pestis*.
- Apply various laboratory tests that are used to presumptively identify *Y. pestis*.
- Use sentinel laboratory protocols to Rule Out or Refer isolates for the identification of *Y. pestis*.

### Registration - Free Registration

- Locate the course online at [www.cdc.gov/labtraining](http://www.cdc.gov/labtraining)
- Follow the link to register for the course in TRAIN
- If you have difficulty with the online registration process, please email [labtraining@cdc.gov](mailto:labtraining@cdc.gov)
- For additional program information, email [labtraining@cdc.gov](mailto:labtraining@cdc.gov) or call (404) 498-6022

### Continuing Education

This course is being revised, so P.A.C.E® credits are not offered at this time. You may receive a course completion certificate without P.A.C.E® credits. The revised course will offer P.A.C.E® credits.

### Special Needs

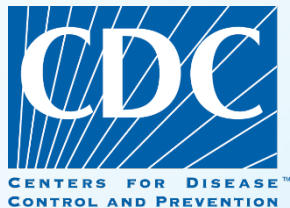
Course content is closed captioned where applicable and optimized for a screen reader.

For a complete list of courses, visit [www.cdc.gov/labtraining](http://www.cdc.gov/labtraining)

# FUNDAMENTALS OF WORKING SAFELY IN A BIOSAFETY CABINET

AN ONLINE LEARNING/ELEARNING COURSE  
AVAILABLE ON [WWW.CDC.TRAIN.ORG](http://WWW.CDC.TRAIN.ORG)

Sponsored by the  
Division of Laboratory Systems, Center for Surveillance, Epidemiology and Laboratory  
Services, Centers for Disease Control and Prevention



## DESCRIPTION

A biological safety cabinet (BSC) is the primary means of containment developed for working safely with infectious microorganisms. Class II BSCs, the most common cabinets used in laboratories, are designed to provide personnel protection (for you and those around you), product protection (for your samples or specimens), and environmental protection.

This basic-level eLearning course module provides information on the safe use of Class II biological safety cabinets. Topics covered include major parts of a BSC, how a BSC works, how to work safely inside a BSC, and what to do if there is an emergency while working in a BSC. Videos, interactive exercises, job aids, and a modifiable checklist template are included in the course to enhance the learning experience.

## AUDIENCE

This online course is designed for public health and clinical laboratory staff, safety professionals and persons interested in safe use of biosafety cabinets.

## SPECIAL NEEDS

Course content is closed captioned where applicable and optimized for a screen reader.

## FREE REGISTRATION

- Register online at [www.cdc.gov/labtraining](http://www.cdc.gov/labtraining)
- If you have difficulty with the online registration process, please email [labtraining@cdc.gov](mailto:labtraining@cdc.gov)

## CONTINUING EDUCATION

The Centers for Disease Control and Prevention, Division of Laboratory Systems is approved as a provider of continuing education programs in the clinical laboratory sciences by the ASCLS P.A.C.E.® Program. This course is approved for 1.0 contact hours. P.A.C.E.® course number: 288-014-19

## OBJECTIVES

At the conclusion of this program, the participant will be able to:

- Identify the major parts of a Class II BSC
- Discuss general facts about BSCs
- List the factors that affect BSC airflow
- Describe the preparation steps for work in a BSC
- Describe the practices for working safely in a BSC
- Describe the steps for completion of work in a BSC
- Describe the BSC procedures to follow in an emergency

**For a complete list of courses, visit [www.cdc.gov/labtraining](http://www.cdc.gov/labtraining).**

# Good Laboratory Practices for Molecular Genetics Testing

Sponsored by the Centers for Disease Control and Prevention, Division of Laboratory Systems

## Course Number

P.A.C.E. ® Course Number: 288-018-18

## Description

This on-line learning module is presented in first person. This means the learner is actually depicted as getting an assignment and doing the work throughout the course. This training is not meant to be prescriptive. There are several different ways to obtain information and perform the tasks described in the training. We are simply providing examples of potential options. The characters and scenarios in this training are fictitious and are based on possible real-life situations. For the purposes of this training module, the manufacturer details are fictional and do not indicate CDC's support for any commercially available product or service. Although some of the recommendations in this training exceed CLIA and other requirements that pertain to molecular genetic testing, following these good laboratory practices will likely lead to improvements in the quality and use of genetic laboratory services and should improve health outcomes for the public.

## Audience

Laborators (including laboratory directors) who perform molecular genetics testing or are considering adding it to the laboratories testing menu.

## Objectives

At the conclusion of this program, the participant will be able to:

- Define how to comply with CLIA requirements as they apply to molecular genetic testing.
- Select quality management approaches for molecular genetic testing Consistent with good laboratory practices and the testing performed in your laboratory.
- Develop policies, processes, and procedures for the molecular genetic testing performed in your laboratory consistent with both CLIA requirements and good laboratory practices

## Registration - Free Registration

- Locate the course online at [www.cdc.gov/labtraining](http://www.cdc.gov/labtraining)
- Follow the link to register for the course in TRAIN
- If you have difficulty with the online registration process, please email [labtraining@cdc.gov](mailto:labtraining@cdc.gov)
- For additional program information, email [labtraining@cdc.gov](mailto:labtraining@cdc.gov) or call (404) 498-6022

## Continuing Education

The Centers for Disease Control and Prevention, Division of Laboratory Systems is approved as a provider of continuing education programs in the clinical laboratory sciences by the ASCLS P.A.C.E.® Program. This course is approved for **1.5** contact hours.

## Special Needs

Course content is closed captioned where applicable and optimized for a screen reader.

For a complete list of courses, visit [www.cdc.gov/labtraining](http://www.cdc.gov/labtraining)

# BASIC MICROSCOPY

## BASIC MICROBIOLOGY CURRICULUM

PROVIDED BY: CDC LABORATORY TRAINING AND SERVICES

AN ONLINE LEARNING/ELEARNING COURSE  
AVAILABLE AT [WWW.CDC.TRAIN.ORG](http://WWW.CDC.TRAIN.ORG)



**U.S. Department of  
Health and Human Services**  
Centers for Disease  
Control and Prevention



## DESCRIPTION

To function effectively in a microbiology laboratory, laboratorians must have a basic knowledge and understanding of the components, setup, procedures, and care and maintenance of a bright field (compound) microscope. This eLearning course will instruct participants on the importance of a correctly setup bright field microscope for the identification of microorganisms.

## AUDIENCE

This basic level course is designed for new or existing public health laboratorians, who have a science background, are entering or reentering the microbiology field and who need training in basic microscopy principles and techniques essential for performing job requirements.

## SPECIAL NEEDS

Course content is closed captioned where applicable and optimized for a screen reader.

## FREE REGISTRATION

- Register online at [www.cdc.gov/labtraining](http://www.cdc.gov/labtraining)
- If you have difficulty with the online registration process, please email [labtraining@cdc.gov](mailto:labtraining@cdc.gov)
- For additional program information, email [labtraining@cdc.org](mailto:labtraining@cdc.org) or call (404) 498-6022

## CONTINUING EDUCATION

The Centers for Disease Control and Prevention Laboratory Training and Services Branch is approved as a provider of continuing education programs in the clinical laboratory sciences by the ASCLS P.A.C.E.® Program. Each course module is approved for 1.0 contact hours.

This course has been approved for 1.0 contact hours in the category of Microbiology/Mycology/Parasitology for Florida Laboratory Licensees.

## OBJECTIVES

At the conclusion of this program, the participant will be able to:

- Identify the major components of the microscope and their function.
- Identify how to maintain a microscope.
- Discuss the role of Kohler illumination in microscopy.
- Describe the process to correctly focus on the appropriate field of view.
- Use the ocular micrometer to measure an object under the microscope.
- Demonstrate the ability to troubleshoot encountered problems with the microscope.

## CE INFORMATION

P.A.C.E.™ Course Number: 288-019-17

FL Course Number: 20-434651

**For a complete list of courses, visit [www.cdc.gov/labtraining](http://www.cdc.gov/labtraining).**



# Biochemicals and Gram Positive Organism ID

## Basic Microbiology Curriculum

Sponsored by the Centers for Disease Control and Prevention, Division of Laboratory Systems

### | DESCRIPTION |

This eLearning course is designed to familiarize laboratorians with how to read a Gram stain, the colonial characteristics and biochemical tests used to identify Gram positive microorganisms as well as commonly used testing algorithms. The course will only cover aerobic microorganisms, those that grow in the presence of oxygen.

### | AUDIENCE |

New or existing public health and clinical laboratorians who have a science background, are entering or reentering the microbiology field and who need training in biochemical test methods and Gram positive microorganism identification essential for performing job requirements.

### | OBJECTIVES |

At the conclusion of this program, the participant will be able to:

- Identify different types of bacterial morphology seen on a Gram stain
- Identify different types of colonial characteristics
- Use flowcharts and identification charts to identify some common aerobic Gram positive microorganisms
- Associate various biochemical tests with their correct applications
- Interpret the results of biochemical methods

### | REGISTRATION |

#### FREE REGISTRATION

- Locate the course online at [www.cdc.gov/labtraining](http://www.cdc.gov/labtraining)
- Follow the link to register for the course in TRAIN
- If you have difficulty with the online registration process, please email [labtraining@cdc.gov](mailto:labtraining@cdc.gov)
- For additional program information, email [labtraining@cdc.gov](mailto:labtraining@cdc.gov) or call (404) 498-6022

### | CONTINUING EDUCATION |

The Centers for Disease Control and Prevention, Division of Laboratory Systems is approved as a provider of continuing education programs in the clinical laboratory sciences by the ASCLS P.A.C.E.® Program. This course is approved for **1.5** contact hours.

### | SPECIAL NEEDS |

Course content is closed captioned where applicable and optimized for a screen reader.

P.A.C.E.® Course Number: 288-020-18