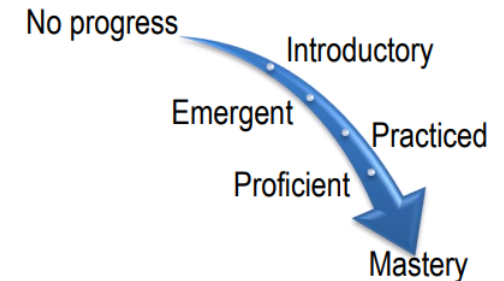


## Bachelor of Science in Fire Science

At Purdue University Global, we employ a method called Course-Level Assessment, or CLA, to determine student mastery of Course Outcomes. Through CLA, we measure how well students gain the skills, knowledge, abilities, and behaviors that employers expect of program graduates. A series of courses prepares students for employment by providing preparation, practice, and opportunities to show mastery of these program outcomes. Each course is developed around a number of learning goals, known as course outcomes, that support a student’s growing mastery of program level outcomes. Faculty members assess each student’s mastery of each course outcome through Course Level Assessments.



### Program Measure for *Standard of Success*:

- 75% or more of students attempting the outcome will perform at the **Emergent** level or greater in **100/200** level courses
- 75% or more of students attempting the outcome will perform at the **Practiced** level in **300/400** level courses

### BSFS 1 – Foundations Outcomes

Demonstrate an understanding of building construction as it relates to firefighter safety, building codes, fire prevention, code inspection, and firefighting strategy and tactics.

Course #	Measurement	Assessment/ Evaluation Results: % Emergent or greater	Meets Criteria
FS101	Explain how motivating factors of modern fire research impact fire science.	FS101-1 = 97.22%	Yes
FS101	Explain heat flux as well as its implications in the danger of fire heat transfer.	FS101-2 = 87.88%	Yes
FS101	Identify types of fire spread.	FS101-3 = 97.22%	Yes
FS101	Interpret and explain factors that have an effect on the energy release rate.	FS101-4 = 94.73%	Yes
FS101	Describe the role fire gases play in the development and spread of fire.	FS101-5 = 87.5%	Yes
FS102	Apply the standards of building construction, as well as building and fire codes, to firefighter safety.	FS102-1 = 100%	Yes
FS102	Illustrate how forces and loads act upon buildings.	FS102-2 = 90.48%	Yes
FS102	Identify types of building designs and structures.	FS102-3 = 80.0%	Yes
FS102	Define the basic codes and regulations related to building construction projects.	FS102-4 = 95.0%	Yes
FS102	Examine the various types of construction materials in order to describe the dangers posed to firefighters.	FS102-5 = 93.75%	Yes
FS103	Illustrate common problems firefighters face in relation to hydraulics and water supply.	FS103-1 = 100%	Yes
FS103	Describe the principles of various water systems.	FS103-2 = 100%	Yes
FS103	Contrast water system adequacy with reliability.	FS103-3 = 100%	Yes
FS103	Identify community fire flow demands and water supplies.	FS103-4 = 100%	Yes
FS103	Apply methods of pumping operations given the current incident or situation.	FS103-5 = 80.0%	Yes

Course #	Measurement	Assessment/ Evaluation Results: % Emergent or greater	Meets Criteria
FS103	Discuss fire stream tactics and principles.	FS103-6 = 75.0%	Yes
FS104	Interpret fire suppression and detection systems as presented in building construction plans.	FS104-1 = 100%	Yes
FS105	Describe development of fire safety codes, inspection procedures, and enforcement.	FS105-3 = 95.0%	Yes
FS202	Explain how fire protection services are organized.	FS202-2 = 90.0%	Yes
FS204	Identify the components of response safety plans, pre-incident planning procedures, and training safety policies.	FS204-5 = 100%	Yes
FS302	Evaluate safety-related behaviors, which incorporate leadership, supervision, accountability, and personal responsibility.	FS302-1 = 95.23%	Yes
FS304	Develop risk reduction objectives and determine appropriate methods to meet them.	304-1 = 73.34%	No
FS304	Create an effective community risk reduction program.	304-3 = 64.28%	No
FS401	Formulate effective decisions based on fire service management & leadership guidelines.	FS401-1 = 100%	Yes
FS401	Assess the impact of codes and standards and inspection review processes as it relates to fire prevention.	FS401-4 = 97.82%	Yes
FS402	Assess the government's role in fire, EMS, and public safety.	FS402-1 = 93.75%	Yes
FS402	Formulate human resources policies based on government roles and impacts.	FS402-2 = 86.67%	Yes
FS402	Examine the role of the American legal system in relation to fire and EMS systems.	FS402-3 = 96.88%	Yes
FS402	Assess influence of legislative and political bodies upon fire and EMS policies and procedures.	FS402-4 = 84.38%	Yes
FS498	Fire Foundations: Demonstrate an understanding of building construction as it relates to firefighter safety, building codes, fire prevention, code inspection, and firefighting strategy and tactics. BSFS -1	FS498-8 = 100%	Yes

## BSFS 2 – Fire Investigation and Analysis Outcomes

Investigate technical, legal, and social aspects of arson.

Course #	Measurement	Assessment/ Evaluation Results: % Emergent or greater	Meets Criteria
FS104	Interpret fire suppression and detection systems as presented in building construction plans.	FS104-1 = 100%	Yes
FS104	Illustrate various types of fire protection systems.	FS104-2 = 100%	Yes
FS104	Discuss extinguishment methods and effective use of clean agent systems.	FS104-3 = 100%	Yes
FS104	Define the functions of a fire alarm system and proper inspection, testing and maintenance requirements.	FS104-4 = 100%	Yes
FS105	Describe how the role of the fire service administration, with regards to fire prevention, works municipal government.	FS105-4 = 93.75%	Yes
FS301	Analyze the physical properties of various kinds of fuels.	FS301-2 = 96.0%	Yes
FS301	Evaluate types of laboratory services that will be utilized during analysis and investigation.	FS301-3 = 90.0%	Yes

Course #	Measurement	Assessment/ Evaluation Results: % Emergent or greater	Meets Criteria
FS301	Analyze role of fire investigators, including in those incidents involving deaths and injuries.	FS301-4 = 100%	Yes
FS301	Develop investigative processes based on various types of fires.	FS301-5 = 97.37%	Yes
FS402	Assess the government's role in fire, EMS, and public safety.	FS402-1 = 93.75%	Yes
FS498	Fire Investigation and Analysis: Investigate technical, legal, and social aspects of arson. BSFS-2	FS498-9 = 100%	Yes

### BSFS 3 – Psychology Outcomes

Analyze the issues that deal with the psychological effects of fire dynamics.

Course #	Measurement	Assessment/ Evaluation Results: % Emergent or greater	Meets Criteria
FS204	Explain the history of health and safety programs for emergency service agencies.	FS204-1 = 100%	Yes
FS204	Describe occupational health and safety programs utilized in emergency services.	FS204-2 = 94.11%	Yes
FS304	Develop effective intervention strategies given community research and involvement.	FS304-2 = 42.10%	No
FS304	Evaluate community risk reduction programs.	FS304-4 = 65.78%	No
FS304	Analyze fire and EMS department and officer roles in community risk reduction.	FS304-5 = 82.05%	Yes
FS498	Psychology: Analyze the issues that deal with the psychological effects of fire dynamics. BSFS-3	FS498-10 = 100%	Yes

### BSFS 4 – Research Methods Outcomes

Apply scientific methods of inquiry to arrive at reasoned decisions regarding fire science.

Course #	Measurement	Assessment/ Evaluation Results: % Emergent or greater	Meets Criteria
FS100	Describe various career opportunities in the fire service.	FS100-1 = 89.65%	Yes
FS100	Demonstrate the ability to utilize university and fire and emergency service specific resources to enhance learning.	FS100-4 = 77.42%	Yes
FS100	Identify significant historical events that directly led to changes in the fire service.	FS100-5 = 96.43%	Yes
FS101	Explain how motivating factors of modern fire research impact fire science.	FS101-1 = 97.23%	Yes
FS101	Interpret and explain the factors that have an effect on the energy release rate.	FS101-4 = 94.74%	Yes
FS202	Identify fire service laws, regulations, and terminology.	FS202-3 = 88.89%	Yes
FS202	Describe how fire departments function as part of local governments.	FS202-4 = 80.0%	Yes
FS204	Explain the history of health and safety programs for emergency service agencies.	FS204-1 = 100%	Yes

Course #	Measurement	Assessment/ Evaluation Results: % Emergent or greater	Meets Criteria
FS204	Discuss the fundamentals of health and safety programs as well as the federal regulations and industry standards that impact them.	FS204-3 = 100%	Yes
FS204	Apply risk identification and risk evaluation concepts to promote safety within emergency services settings.	FS204-4 = 100%	Yes
FS204	Describe the 16 Firefighter Life Safety Initiatives.	FS204-6 = 100%	Yes
FS208	Describe the legal responsibilities of emergency services personnel.	FS208-1 = 89.47%	Yes
FS208	Explain common legal issues that impact emergency services.	FS208-2 = 100%	Yes
FS208	Discuss the aspects of criminal and civil laws that emergency services agencies are likely to encounter.	FS208-3 = 93.75%	Yes
FS208	Discuss the state and local laws that have an effect on the management of emergency services.	FS208-4 = 93.34%	Yes
FS208	Analyze the impact of recent legal decisions on emergency services agencies.	FS208-5 = 93.75%	Yes
FS301	Evaluate the characteristics of fire science analysis and investigation organizations and apply these characteristics to the management of fire departments.	FS301-1 = 100%	Yes
FS302	Develop strategic and tactical decision-making skill through the application of risk management concepts.	FS302-2 = 100%	Yes
FS302	Evaluate the circumstances that might lead to unsafe acts.	FS302-3 = 100%	Yes
FS302	Analyze investigation data and determine how to use the information to support behavioral change in emergency services personnel.	FS302-5 = 95.24%	Yes
FS304	Develop risk reduction objectives and determine appropriate methods to meet them.	FS304-1 = 73.34%	No
FS401	Appraise fire prevention research as a part of community risk reduction and education.	FS401-3 = 91.67%	Yes
FS401	Select effective financial and department resource management methods.	FS401-5 = 97.62%	Yes
FS402	Examine the ethical roles of government fire and EMS officials.	FS402-5 = 75.86%	Yes
FS403	Apply the skills and actions of leadership and management.	FS403-1 = 86.11%	Yes
FS403	Analyze a department-level budget.	FS403-2 = 94.87%	Yes
FS403	Evaluate appropriate methods of managing standard operating procedures and departmental policies.	FS403-3 = 87.50%	Yes
FS403	Determine effective methods and techniques for creating and maintaining a team environment.	FS403-4 = 97.14%	Yes
FS413	Evaluate current fire-related research.	FS413-1 = 100%	Yes
FS413	Apply fire research methodologies to current issues and trends.	FS413-2 = 100%	Yes
FS413	Defend a fire-related research proposal.	FS413-3 = 95.83%	Yes
FS413	Analyze a fire service safety issue using common data collection and management methodologies.	FS413-4 = 91.30%	Yes
GEL2.1	Relate mathematics to the field of study.	GEL-2.1 =	DNA
FS414	Compare general human resources management issues with those common to fire and EMS agencies.	FS414-1 = 94.45%	Yes
FS414	Forecast the possible personnel management concerns that affect the operations of fire and EMS agencies.	FS414-2 = 88.57%	Yes

Course #	Measurement	Assessment/ Evaluation Results: % Emergent or greater	Meets Criteria
FS414	Develop recommendations, solutions, and policies for common personnel management matters.	FS414-3 = 86.49%	Yes
FS414	Analyze rules, regulations, laws, and policies that impact human resources management.	FS414-4 = 93.94%	Yes
FS498	Fire Investigation and Analysis: Investigate technical, legal, and social aspects of arson. BSFS-2	FS498-9 = 97.43%	Yes
FS498	Research Methods: Apply scientific methods of inquiry to arrive at reasoned decisions regarding fire science. BSFS-4	FS498-11 = 91.11%	Yes

### BSFS 5 – Technology Outcomes

Analyze methods that integrate the use of technology to inform and enhance operational and strategic decisions that will enhance firefighting strategy and tactics.

Course #	Measurement	Assessment/ Evaluation Results: % Emergent or greater	Meets Criteria
FS102	Apply the standards of building construction, as well as building and fire codes, to firefighter safety.	FS102-1 = 100%	Yes
FS201	Explain commonly used methods to formulate firefighting strategies and tactics.	FS201-1 = 100%	Yes
FS201	Explain the importance of pre-fire planning.	FS201-2 = 100%	Yes
FS201	Explain strategies and tactics that can be employed in special situations such as transportation emergencies, high-rise fires, and below ground and confined space emergencies.	FS201-6 = 93.75%	Yes
FS202	Apply the components of planning and operations to multiple agency responses to major incidents.	FS202-5 = 100%	Yes
FS204	Identify the components of response safety plans, pre-incident planning procedures, and training safety policies.	FS204-5 = 100%	Yes
FS302	Demonstrate how technological advancements can increase the safety and survival of emergency services personnel.	FS302-4 = 100%	Yes
FS401	Examine the fire officer's role within the organization, in the community, and during emergency response.	FS401-2 = 97.96%	Yes
FS498	Technology: Analyze methods that integrate the use of technology to inform and enhance operational and strategic decisions that will enhance firefighting strategy and tactics. BSFS-5	FS498-12 = 100%	Yes

DNA = Data Not Available