Name:	***Fire-Related Human Behavior***
Course Description:	This course examines human aspects of the fire problem, including research and analysis of the problem and related issues in residential properties, wildland fires, assisted living/group home situations, commercial/industrial settings, and multiuse highrise buildings.
Objectives:	**Unit 1: Fire-Related Aspects of Human Behavior**
	• Compare fire death rates in the United States with rates in other industrialized nations. • Identify fire-related factors that differ among the United States and other industrialized nations. • Identify the populations, structures, and communities at high fire risk. • Increase student interest in all aspects of fire-related human behavior.
	Unit 2: Research
	• Identify techniques that appeal to emotion instead of reason. • Differentiate between the experimental and correlational methods. • Identify the factors that affect the outcome of an experiment. • Identify the factors that affect the results of correlational analysis. • Describe the different types of correlational analysis. • Differentiate between valid and invalid research conclusions.
	Unit 3: Systems Models
	• Explain, with specific examples, how the performance of people depends on the characteristics of buildings and fire protection features. • Explain, with specific examples, how the performance of buildings and associated fire protection features depends on the behaviors of the people who design and occupy the buildings. • Name two characteristics of hard systems approaches that can deceive naive users. • Describe the two ways in which hard and soft systems approaches differ, and how these differences make the various types of models more useful or less useful for different types of problems. • List the two ways that hard systems models help us examine the acceptability of egress routes from buildings. • Explain the faulty assumption that reduces the validity of the lane model of evacuation capacity and the characteristics of human movement that make this assumption incorrect. • List two sources of assumptions used in the current method for calculating exit capacities in the model codes. • Explain why a simple linear model of exit capacities is less valid than the effective width model and state how researchers discovered its inaccuracy. • Identify the source of the effective width model. Describe an important limitation to the accuracy of the effective width model. • List two computer models that use information about building occupants to help predict overall systems (building) performance during fires. Describe one important way in which these two models differ. • Explain the logical basis for goal decomposition, and list three goal-based systems approaches that use this technique.

Objectives:	Unit 4: Residential Fire in a Single-Family Dwelling
	• Describe how at least two factors increase fire risks for people who live in low-income neighborhoods. • Explain how the **hindsight bias** affects how people assign blame for disastrous fires. • Correctly answer whether the following statement is true: "Young children think much the same way as adults; they just don't have as much knowledge." Explain how differences in cognitive abilities affect how children learn about fire safety and provide one example. • Describe how the concept of **action schema** can help explain why children can behave irrationally in fires. • Describe three differences in the way that men and women tend to respond to fire emergencies. • Explain why people seem complacent in their acceptance of **remote risks**. Provide at least one fire safety example. • List three factors that tend to increase the likelihood that firefighters will experience **posttraumatic stress** reactions. • Describe the **representativeness bias** and provide one fire safety example. • Describe the **availability bias** and provide one fire safety example. • Explain why passing an ordinance or publicizing a hazard often is insufficient to elicit much of a response from the public. Describe the best way to overcome these obstacles in low-income neighborhoods.
	Unit 5: Wildland/Rural Fire
	• Identify the three phases of human response to a fire and the three environmental factors that influence information processing during each stage. • Identify the three types of **judgment heuristics** that affect risk perception. • Explain how an individual or group could use a **rational decision-making model** when a significant fire threat confronts it. • Explain how **bounded rationality** affects human judgment and decisionmaking. • Explain **posttraumatic stress** (PTS) and how debriefing serves as an intervention to deal with PTS. • Describe the differences between **acute stress, delayedstress,** and **cumulative stress** that a firefighter would exhibit as a result of a critical incident.
	Unit 6: Board-and-Care Home Fire
	• Provide examples that show how roles influence people's views of fire safety. Provide at least one example of role conflict relevant to fire safety. • Explain why policies intended to prevent fires sometimes can increase risk. Explain how a policy that prohibits residents from smoking and a law that requires sprinklers in existing businesses can fit this pattern. • Provide an example in which emergency procedures that are suitable in one setting are inappropriate in another.

Objectives:	Unit 6: Board-and-Care Home Fire (cont'd)
	• Provide an example of how people tend to use familiar routes of egress during fire emergencies. • Describe how the characteristics of the people in various types of board-and-care homes make it difficult to apply the same requirements to all such facilities. List two examples each of cognitive, sensory, and physical disabilities. Describe how each could impede someone's ability to survive a fire incident. • Explain the term mental model, and provide an example of how an inadequate mental model can lead to unacceptable levels of risk from fire. • Describe how the roles of various stakeholders affect the positions that they take regarding the content and need for fire safety requirements. • List at least two factors that affect how the public views the acceptability of risk. • List at least two obstacles that can interfere with a fire department's efforts to lobby for a residential sprinkler ordinance. Describe how these can be overcome.
	Unit 7: Commercial/Industrial Fire
	• Identify the four attributes and characteristics of group behavior and explain why the actions portrayed in the scenario are consistent with the four attributes and characteristics. • Explain how physical setting characteristics influence human response in the scenario provided. • Identify the motivations that prompt people to start fires. • Describe how fire affects communities, including the impact on community business. • Explain why code enforcers sometimes are hesitant to use their judgment in enforcing fire codes flexibly, including recent innovations in codes that help enforcers administer the National Fire Protection Association (NFPA) 101® standard *Life Safety Code*, flexibly. • Describe the three economic factors that must be present before property owners find it economically acceptable to comply with codes. • Describe the reasons why regulatory authorities can induce compliance for economic reasons even when compliance is unacceptable economically. • Describe an approach that enforcers can use to encourage compliance with codes even when compliance is not in the best economic interest of property owners. • Name the two things that must happen before people will take appropriate action in response to hearing an alarm signal.
	Unit 8: Multi-Use Occupancy (Highrise) Fire
	• Describe at least two ways in which multiple occupancies in a large building can interact to create problems related to human behavior. • Explain diffusion of responsibility and describe the classic social psychology experiment that used a simulated fire emergency to test the theory.

Objectives:	Unit 8: Multi-Use Occupancy (Highrise) Fire (cont'd)
	• Explain why people seem to persist at a task even when there are signs that an emergency might exist. • List two reasons why people are not good at decisions that involve "gambles." • Define the terms **latent error** and **active error**. List some fire safety examples of each, and list two examples of roles in which people are likely to make these types of errors. • Correctly answer the question, "Are people likely to panic during a fire emergency?" • Describe the effect of role behavior on how people behave during fires and give one example. Explain what **emergent leadership** means and give one fire safety example. • Correctly rank the effectiveness of floor plans, signs, and verbal instructions in helping people find their way around buildings. Explain why these approaches fall into this order of effectiveness. • Explain why false and nuisance alarms and surprise fire drills can reduce the likelihood that people will respond to a fire alarm signal that indicates a real fire. • Describe the effects of various levels of stress on human performance. • Describe the two basic approaches that have been developed to calculate egress travel times. • Explain what the term **convergence clusters** means. • Correctly answer the question, "Is there evidence that shows that people easily awaken to the smell of smoke?" • Discuss the problems associated with protecting people with disabilities during fire emergencies. Explain why it can be difficult to identify such people and why they may not want to be identified. • Describe at least two human behavioral issues associated with the use of elevators to evacuate people from large buildings. • Explain why verbal alarm messages evoke faster responses from building occupants than traditional nonverbal alarm signals. Explain why the content and timing of the messages must be planned carefully.
Required Texts:	*Fire-Related Human Behavior Course Guide*, National Fire Academy *Death Rate Trends: An International Perspective*, U. S. Fire Administration *Socio-economics Factors and the Incidence of Fire*, U. S. Fire Administration
Supporting References/ Research for Faculty and Students	**U. S. Fire Administration** Publications: http://www.usfa.fema.gov/applications/publications/pubs_main.cfm See Fire Protection, Fire Administration, Fire Service Operations, Wildfire Applied Research: http://www.usfa.fema.gov/dhtml/inside-usfa/research.cfm Research Reports: http://www.usfa.fema.gov/dhtml/inside-usfa/r_reports.cfm Technical Reports: http://www.usfa.fema.gov/applications/publications/techreps.cfm

Supporting References/ Research for Faculty and Students	Topical Fire Research Series: http://www.usfa.fema.gov/dhtml/inside-usfa/tfrs.cfm Learning Resource Center: http://www.usfa.fema.gov/dhtml/inside-usfa/lrc.cfm **National Institute for Standards and Technology** http://www.fire.nist.gov: Fire Tests/Data, Software/Models, Publications, FIREDOC (under Publications) http://fire.nist.gov/bfrlpubs/fire93/art090.html **References** Society of Fire Protection Engineers: http://www.pentoncmg.com/sfpe/index.html http://www.peopleandfire.com/ **Current Events/News** http://www.firehouse.com/ http://www.fireengineering.com/ http://www.withthecommand.com/
Assessment:	Students will be evaluated for mastery of learning objectives by methods of evaluation to be determined by the instructor.
NFPA Standards Addressed:	None.
Chief Fire Officer Designation Competencies Addressed:	www.cfainet.org This course provides partial fulfillment of CFOD: Competency #11 Life Safety Competency #13 Public Education and Community Relations
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