COLLEGE OF BUSINESS
Fire and Emergency Services Administration Program
FESA 4312 Applications of Fire Research
January 20, - May 15, 2026

A. MAJOR COURSE DESCRIPTION/REQUIREMENT

This course examines the basic principles of research and methodology for analyzing current fire-related research. The course also provides a framework for conducting and evaluating independent research in the following areas: fire dynamics, fire test standards and codes, fire safety, fire modeling, structural fire safety, life-safety, firefighter health and safety, automatic detection and suppression, transportation fire hazards, risk analysis and loss control, fire service applied research and new trends in fire-related research.

B. LEARNING OUTCOMES

1. Locate, evaluate, and analyze fire-related research.

2. Demonstrate the application of fire research to a research problem related to one of the course topics.

3. Conduct a literature review of current research on a fire-related topic.

4. Write a fire-related research proposal.

5. Design a research plan using one or more qualitative and/or quantitative methodologies.

C. LECTURE OR DISCUSSION TOPICS

- Introduction to Research
- Reviewing literature
- Performance Management
- Defining and measuring the problem
- Analyzing Baseline Results
- Improving the Process
- Maintaining Control
- Qualitative Research

D. REQUIRED OR RECOMMENDED READINGS

Applications of Fire Research and Improvement, 2nd Ed (2020); Mic Gunderson/Jeffrey T. Lindsey, Brady Fire Publishing. ISBN 9781284206456