

ENFP 465: Fire & Explosion Investigation and Reconstruction	Instructor: Tom DeBold, P.E., CFEI tdebold@umd.edu
Spring 2022, 3 Credits	Class Time: M 9:30-10:45 AM W 9:30-10:45 AM

Course Text:

Kirk's Fire Investigation (8th Edition) by David Icove, Gerald Haynes (Recommended)

Recommended references: NFPA 921, Guide for Fire & Explosion Investigations (Accessible free online)

NFPA 1033, Standard for Professional Qualifications for Fire Investigator (Accessible free online)

Course Outline

Module 1: Class Introduction and Overview of Fire & Explosion Investigation & Reconstruction

Module 2: Fire Dynamics & Ignition

Module 3: Combustion Hazards

Module 4: Fire Patterns Analysis

Module 5: Explosion Basics

Module 5a: Dust Explosion Basics

Module 6: Fire Scene Examination & Documentation

Module 7: Fire & Explosion Modeling

Module 8: Building Systems

Module 9: Fire Deaths & Toxicology

Module 10: Fire Testing

Module 11: Electricity

Module 12: Special Topics: Ammonium Nitrate Explosions (Beirut) (Rotating*)

Basic Course Objectives:

Understand the role and responsibilities of the fire and explosion investigator and engineer

Have an ability to apply fire and explosion dynamics to forensic investigations

Understand the role of the scientific method in forensic investigations

Have an understanding of the applicable codes and standards related to forensic investigations

Understand the legal frameworks in which forensic investigations take place

Have an understanding of notable fire and explosion events

Understand the basic terminology and techniques involved in forensic investigations

Grading

This class requires attendance and participation.

Homework (30% of total): Homework assignments will be given out during the course of the semester. Homework will be due on a weekly basis unless otherwise specified.

Participation (10% of total): Active participation and attendance is required.

Class Project (20% of total): Further details to be provided in class.

Midterm Exam (20% of total): A midterm exam will be given that covers the material from the class.

Final Exam (20% of total): A comprehensive final exam will be given that covers the material from the class.