

ENFP 489N: Fire & Explosion Investigation and Reconstruction	Instructor: Noah L. Ryder, P.E. nryder@gmail.com
Spring 2017, 3 Credits	Class Time: M 3-4:50 pm, W 3-3:50 pm

**Course Text:** Forensic Fire Scene Reconstruction (3rd Edition) by David Iove

Recommended references: NFPA 921, Protocols for Scientific Fire Investigation

### **Course Outline**

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

Module 2: Fire Dynamics

Module 3: Ignition and Fire Patterns

Module 4: Fire Scene Documentation

Module 5: Fire Protection & Other System Performance

Module 6: Fire Testing

Module 7: Fire Deaths

Module 8: Electrical & Appliance Fires

Module 9: Legal Considerations

Module 10: Fire Modeling

### **Basic Course Objectives:**

Define and explain common terms used in fire and explosion investigations.

Describe the basic elements of fire dynamics and how they affect cause determination including fire behavior, characteristics of fuels and methods of heat transfer.

Analyze the relationship of building construction on fire investigations including types of construction, construction and finish materials.

Evaluate fire protection systems and building services and discuss how their installation affects the ignition and spread of smoke and fires in buildings.

Discuss the basic principles of electricity and electrical ignition sources.

Describe fire scene investigations and the process of conducting investigations using the scientific method.

Explain how an investigator determines the area of origin in a room.

Identify the types of fire causes and differentiate between accidental and incendiary causes.

## **Grading**

This class requires attendance and participation. All grades are *earned* not given.

**Homework (40% of total):** approximately 8 homework assignments will be given out during the course of the semester, each worth 5% of the total grade (scaled according to the number of assignments). Homework will be due on a weekly basis unless otherwise specified.

**Participation (10% of total):** active participation and attendance is required. In short if I don't see you in class and don't know your name by the end of the class don't expect to get the full 10%.

**Class Project (25% of total):** the class will be assigned a group project (size of groups to be specified in class). Your grade will be dependent on input from your group, from the class, with the remainder to be determined by the instructor. Further details to be provided in class.

**Final Exam (25% of total):** a comprehensive final exam will be given that covers the material from the class.