



SCIENTIFIC FIRE ANALYSIS, LLC

PRESENTS

Scientific Protocols for Fire Investigation

A 3-day course presented by John J. Lentini, CFI, D-ABC

DAY 1

7:30-8:00 AM *(all times are approximate)*

Registration and Distribution of Materials

8:00-8:15 AM

Welcoming remarks, Introduction by Host

8:15-10:15 AM

Chapter 1, Fire and Science

Introduction – Fire and Science: Intertwined Development

The Scientific Method - Recognition of Fire Investigation as a Science,

Development of Standards: NFPA 921 and NFPA 1033

The Role of the Players Involved in Fire Investigation

10:15-10:30 AM

Break

10:30 AM-12:00 PM

Chapter 2, The Chemistry and Physics of Combustion

Fire and Energy

Units of Measurement for Fire Properties

Energy, Temperature, Power and Flux

States of matter, Basic Combustion Chemistry

12:00-1:00 PM

Lunch

DAY 1 Continued

1:00-2:00 PM

Chapter 2, The Chemistry and Physics of Combustion (continued)

Properties of Matter, Response of Solids, Liquids and Gases to Heat

2:00-3:00 PM

Chapter 3, Fire Dynamics and Fire Pattern Development

Ignition, Spontaneous Ignition, Chemical Ignition
Flames

3:00-3:15 PM

Break

3:15-5:00 PM

Chapter 3, Fire Dynamics and Fire Pattern Development (continued)

Compartment Fires
Fire Pattern Development
Ventilation
The "Z-Factor": Elevated Origins
Computer Fire Modeling

DAY 2

8:00-10:00 AM

Chapter 4, Fire Investigation Procedures

Planning, Right of Entry, Safety
Origin Determination
Cause Determination
Evidence Collection
Fatal Fires
Documentation, Report Writing and Record Keeping

DAY 2 Continued

10:00-10:15 AM

Break

10:15-11:15 AM

Chapter 5, Analysis of Ignitable Liquid Residues

Separation Methods

Gas Chromatography-Mass Spectrometry

The Meaning of Positive and Negative Findings

Identity of Source

11:15 AM-12:00 PM

Chapter 6, Evaluation of Ignition Sources

Joint Inspections

Electronic Device Failure Modes

Lithium Ion Batteries

Metal Oxide Varistors (MOVs)

12:00-1:00 PM

Lunch

1:00-2:15 PM

Chapter 6, Evaluation of Ignition Sources (continued)

Kitchen Ranges, Coffee Makers, Deep Fat Fryers

Heating Appliances, Water Heaters, Clothes Dryers

Fluorescent Lights, Recessed Lights, Exhaust Fans

Service Panels, Oxygen Generators

Scenario Testing, Following Up

DAY 2 Continued

2:15-3:00 PM

Chapter 7, Practical Examples

Arson Fires, Dryer Fires, Electrical Fires

3:00-3:15 PM

Break

3:15-5:00 PM

Chapter 7, Practical Examples (continued)

Fluorescent Light Fires, Gas Fires, Heater Fires

Industrial Fires

Lightning Fires/CSST

Water Heater Fires

Code Violations

DAY 3

8:00-10:00 AM

Chapter 8, The Mythology of Arson Investigation

Myths And Legends, Toxic Literature

Alligatoring, Crazed Glass, Spalling, Irregular Patterns

Furniture Springs, Melted Metals

Low Burning, "Fast" Burning

10:00-10:15 AM

Break

DAY 3 Continued

10:15 AM-12:00 PM

Chapter 9, Sources of Error in Fire Investigation

Overlooking Critical Data

Misinterpreting Critical Data

Misinterpreting Irrelevant Data

Ignoring Inconsistent Data

Two-dimensional Thinking

Poor Communication

Faulty Chemistry Or Engineering

12:00-1:00 PM

Lunch

1:00-3:00 PM

Chapter 9, Sources of Error in Fire Investigation (continued)

Practical Examples Of Investigations Gone Awry

3:00-3:15 PM

Break

3:15-4:00 PM

Chapter 10, The Professional Practice of Fire Investigation

Identifying Stakeholders, QA 101, Standards, OSAC

Business Practices, *Pro Bono* Work

Serving as an Expert Witness

Advocacy, Discovery, Courtroom Testimony

Direct Examination, Cross-examination

4:00-5:00

Final Examination

For information about scheduling this course at your facility contact:

John Lentini
Scientific Fire Analysis, LLC
88005 Overseas Highway, #10-134
Islamorada, FL 33036
770-815-6392

e-mail: scientific.fire@yahoo.com, website: www.firescientist.com

