

COURSE IMPLEMENTATION DATE: [January 2005]
 COURSE REVISED IMPLEMENTATION DATE: []
 COURSE TO BE REVIEWED: [January 2009]
 (Four years after implementation date)

OFFICIAL COURSE OUTLINE INFORMATION

Students are advised to keep course outlines in personal files for future use.
 Shaded headings are subject to change at the discretion of the department and the material will vary
 – see course syllabus available from instructor

FACULTY/DEPARTMENT CRIM 293	CRIMINAL JUSTICE	3
COURSE NAME/NUMBER	FORMER COURSE NUMBER	UCFV CREDITS
Theory & Practice of Fire Investigations II		
COURSE DESCRIPTIVE TITLE		

CALENDAR DESCRIPTION:

This course examines basic fire investigation techniques that, when combined with expert assistance, will enhance the success of fire investigations, which are recognized as among the most difficult types of investigations. In particular, the course examines how fire scene investigations can scientifically determine whether the fire was deliberately set. The course includes field studies (labs) to introduce students to actual on-the-scene fire investigations.

PREREQUISITES: Admission to the BGS Police Studies program
 CRIM 151 and CRIM 160
 CRIM 291 or CRIM 292

COREQUISITES:

SYNONYMOUS COURSE(S)	SERVICE COURSE TO:
(a) Replaces: _____ (Course #)	(Department/Program)
(b) Cannot take: _____ for further credit. (Course #)	(Department/Program)

TOTAL HOURS PER TERM: <u>45</u>	TRAINING DAY-BASED INSTRUCTION
STRUCTURE OF HOURS:	LENGTH OF COURSE: _____
Lectures: 37 Hrs	HOURS PER DAY: _____
Seminar: Hrs	
Laboratory: 3 Hrs	
Field Experience: Hrs	
Student Directed Learning: 5 Hrs	
Other (Specify): Hrs	

MAXIMUM ENROLLMENT: 27

EXPECTED FREQUENCY OF COURSE OFFERINGS: annually

WILL TRANSFER CREDIT BE REQUESTED? (lower-level courses only) Yes No

WILL TRANSFER CREDIT BE REQUESTED? (upper-level requested by department) Yes No

TRANSFER CREDIT EXISTS IN BCCAT TRANSFER GUIDE: Yes No

AUTHORIZATION SIGNATURES:

Course Designer(s): _____ A.R. Speevak, BA, MS	Chairperson: _____ <i>(Curriculum Committee)</i>
Department Head: _____ Dr. Darryl B. Plecas	Dean: _____ Dr. Virginia B. Cooke
PAC Approval in Principle Date: _____	PAC Final Approval Date: January 28, 2005

COURSE NAME / NUMBER**LEARNING OBJECTIVES / GOALS / OUTCOMES / LEARNING OUTCOMES:**

The goal of this course is to introduce students to the specialized field of fire investigations and enforcement, and for those already assigned to such investigations, to improve their ability, skills, and knowledge. For each investigative topic in the course, students will:

- Demonstrate investigative competencies.
- Understand the nature and chemistry of fire.
- Interpret and apply the law as it relates to fire investigations.
- Demonstrate professionalism.

METHODS:

Lectures, video, CD/DVD, participative class discussions, projects and practical team exercises (skill display), and assessments

PRIOR LEARNING ASSESSMENT RECOGNITION (PLAR):

Credit can be awarded for this course through PLAR (Please check:) Yes No

METHODS OF OBTAINING PLAR:

Contact Department for procedure

TEXTBOOKS, REFERENCE, MATERIALS:

[Textbook selection varies by instructor. An example of texts for this course might be:]

Provided by the Office of the Fire Commissioner

Criminal Code, RSC, 1985

Coroner's Act (provincial)

STUDENT EVALUATION:

[An example of student evaluation for this course might be:]

Book Report	15%
Practical Assignments & Projects	30%
Final Exam	55%

GRADING

A+	95% and above	C+	65 – 69%
A	90 – 94%	C	60 – 64%
A-	85 – 89%	C-	55 – 59%
B+	80 – 84%	P	50 – 54%
B	75 – 79%	NC	49% and below
B-	70 – 74%		

COURSE CONTENT:

[Course content varies by instructor. An example of course content might be:]

SESSION 1: COURSE ORIENTATION AND INTRODUCTION TO FIRE INVESTIGATION

Review of Level I course.

SESSION 2: CHEMISTRY OF FIRE

Students must have a sound understanding of how fire occurs and how fire behaves under varied conditions. This session provides students with basic knowledge of the chemistry of fire. The session will include the role of heat, methods of heat transfer, sources of ignition, flash point of flammable liquids, ignition temperature of combustibles, and the flammable range of explosives, fuel and its role in fires, common combustibles, flammable liquids and gases, exposed surface area and the division of materials, and oxygen and its role in fires, percentage volumes, ventilation, smoldering aspects, and oxidizers.

SESSION 3: DETERMINING THE FIRE CAUSE: SCENE

Fire causes are determined by examining the fire scene and interviewing witnesses. This session covers the examination of the fire scene and initial interview of witnesses and preliminary inquiries. Topics include: tracing the fire to point of origin by examination of the spread of the fire, burn patterns, and ventilation; determining multiple points of origin; determining the presence of combustibles or inflammables; the examination of fire debris; determining the type of fire; and incendiary devices. Other topics include: security of the scene; examination and elimination of specific causes, such as electrical, heating appliances, uncommon fuels or chemicals; collecting exhibits; photographs and sketches; and missing items (e.g. personal effects).

SESSION 4: DETERMINING THE FIRE CAUSE: LAB

Working in teams/syndicates, students are presented with the circumstances of a fire in a building or structure. Students demonstrate the major steps of fire scene examination, including the security of the scene, full interior and exterior examinations, elimination of areas and determination of point(s) of origin and examination of the point of origin of the fire. The scene examination includes the elimination of accidental causes, determination of use of accelerant or incendiary devices, and identification of the major steps of preliminary investigation to be followed. Given a recently extinguished fire in a building or motor vehicle, the syndicates will locate the point of origin, determine the cause of the fire and determine whether or not an accelerant or incendiary device was used.

SESSION 5: INCENDIARY DEVICES

Incendiary devices are used to disguise the origin and nature of a fire, to facilitate the spread of the fire and/or to provide delayed ignition. This session will cover mechanical, chemical and electrical incendiary devices. These will include candles, cigarettes and book matches, pot of oil on stove, "trailers", use of phones or buzzers, Molotov cocktails, flares and projectiles, acids, and the use of glycerin chlorine, potassium permanganate, and heating elements, delay timers, and extension cords and light bulbs as fire setters.

SESSION 6: FATAL FIRES

This session examines the role of pathology, the various means of identification of human remains, the types of laboratory analysis to be requested, and other issues when dealing with medical personnel. Pathology is studied in terms of its use at fatal fire scenes to identify human remains through the recovery and examination of teeth and dentures, eye glasses, surgical evidence, fractures; blood type, and fingerprints. Also studied is how pathology uses super-imposition to identify remains. Required analyses in fatal fires are reviewed, including carbon monoxide, alcohol/drugs, blood typing, hydrogen cyanide, and the analyses of tissue and clothing. Investigators need to often make specific requests of medical personnel, and so must understand the capabilities of medical personnel and facilities available in different locations, know legal authorities under the *Criminal Code* and *Coroners' Act*, and be able to ensure the court appearance of medical expertise.

SESSION 7: FRAUD FIRES

This session reviews the statistics and research on trends in fraudulent fires (e.g., in relation to economic cycles and other factors). This session deals with the procedures to be followed for thorough fire scene investigations to be determine whether a fire was set for possible fraudulent motives. This session also examines relevant sections of the *Criminal Code* on fraud, false pretences and arson. Investigation procedures are studied that, in addition to determining the cause of a fire, determine the willful nature of the fire by interviewing owners/occupiers, by reviewing fire history, property title, mortgages, encumbrances, by determining the value of the land, buildings and contents, by examining insurance policies, by determining who may have had exclusive opportunity to commit the arson, and by coordinating investigations with a financial audit and the insurance adjuster.

SESSION 8: VEHICLE FIRES

A large number of vehicles fires annually supports the suspicion of vehicle arson and fraud. This session will examine auto fire statistics, patterns of vehicle fires generally and patterns of vehicle arson fires (i.e. late night, early a.m., unattended, etc.) to demonstrate the need for competent investigations of vehicle fires. This session then provides students with fire scene examination requirements for vehicles, such as mechanical inspection, vehicle service history, and motives for vehicle incendiary fires.

SESSION 9: VANDAL FIRES

The largest category of set fires is acts of vandalism. Such acts range from garbage can fires to multi-million dollar losses to schools, shopping malls, churches, and other structures. This session examines the vandal fire issue in society, and reviews investigation approaches. Topics include determining motive from the pattern and method of operation, human behaviour and psychology in vandalism cases, and pitfalls in such investigations. The session also reviews collaboration and assistance from welfare, probation workers and the courts and reviews the *Youth Criminal Justice Act*.

SESSION 10: THE CHEMISTRY OF EXPLOSIONS: GASEOUS AND HARD

This session examines the characteristics and distinctions between gaseous and hard explosions, the investigative procedures with particular reference to identifying gaseous or hard explosive substances or causes, the isolation of the

scene, descriptive analysis of the damage caused, the causes of gaseous explosions, and cautions concerning remaining explosive substances. This session also reviews the necessity for obtaining assistance from experts, particularly to desensitize or neutralize remaining explosives, to locate the origin, screening of debris and gathering of evidence from explosive scenes.

SESSION 11: INTERVIEW AND INTERROGATION OF WITNESSES AND ARSON SUSPECTS

This session focuses on preparing an interview plan and the techniques of interviewing to be used in fire investigations. Topics include: the importance of not identifying the cause of fire in the interview, obtaining recorded statements early in the investigation, having the witness/suspect “walk through” the fire scene, and the importance of “res gestae”, things said at the fire scene. This session also deals with the legal requirements for taking statements from suspects that are intended to be used as evidence in court. This session reviews the types of statements, factors determining admissibility, exceptions to the hearsay rule, cautions, and the application of the *Youth Criminal Justice Act*.

SESSION 12: CASE PREPARATION

This session reviews the principles of case preparation in order to ensure admissibility of evidence in a criminal trial and/or civil trial. The session reviews key elements of the Report to Crown Counsel, pre-trial interviews, viewing the scene, the use of video and photographs, and the proper presentation of exhibits.

SESSION 13: THE LAW OF ARSON

The specialized nature of fire investigations requires specific knowledge of the application of particular sections of the *Criminal Code*, evidence procedures, and relevant case law. This session reviews the *Criminal Code*, including Part IX (Offences Against Property), Part XI (Willful and Forbidden Acts in relation to Property), and the elements of a case to prove when an incendiary fire has occurred (i.e., proving the fire, the incendiary origin, the motive, and the guilt of the accused as perpetrator of the fire). This session examines relevant case law, including joint charges, attempts and similar acts, total interest in property, nature of criminal negligence, legal presumptions, structures, and motive and opportunity versus exclusive opportunity.

SESSION 14: MOCK TRIAL / GIVING EVIDENCE & FINAL EXAM

The first part of this session is intended as a practical exercise and oral exam of key elements of this course, both to acquaint students with a typical courtroom experience in fire prosecutions and to provide a demonstration of the knowledge and material learned in the course. This includes syndicate or team examination of a fire scene or prepared case, assignment of roles (perhaps with a Crown Counsel and/or judge in attendance), and the presentation of evidence through student witnesses. The second part of this session is the final written part of the examination.