

**Central Ohio Technical College**  
**Course Description Listing – Forensic Science Technology Courses**  
**2009-2010 Academic Year**

**FOR-5510 Principles of Forensics**

3 credit hours, 3 contact hours (3 hours lecture and 0 hours lab). Prerequisite: None; however, (CHM-1700 and CHM-1710 or CHM-1713) and LET-5209 are recommended. Course is graded A-E.

The purpose of this course is to provide the student with an overview of the various disciplines of forensic science and how they relate to the identification, detection, and solution of crime. The student will learn the significance of preserving physical evidence. The student will be introduced to the role of the criminalistics laboratory for comparison and analysis of evidence. This course will provide the framework for the skills needed by a crime lab technician and crime scene processor.

**FOR-5514 Forensic Firearms**

3 credit hours, 5 contact hours (2 hours lecture and 3 hours lab). Prerequisite: Acceptance into the Forensic Science Technology Program and permission of the Program Director. Course is graded A-E.

This course will enable the student to learn firearms and knife safety techniques including firing, unloading, packaging and transporting weapons to the lab. The student will also learn how to test fire a weapon while maintaining all safety requirements and will study ammunition characteristics and identification. The student will also apply scientific crime detection techniques in the field of firearms investigations including ballistics, trace metal detection, gun powder residue, instant shooter identification, determining range of fire. Knife and gun shot wounds and legal aspects of firearms investigations and the history of firearms investigation will be discussed. Bullet and cartridge case comparison will also be practiced.

**FOR-5516 Forensic Investigations**

4 credit hours, 6 contact hours (3 hours lecture and 3 hours lab). Prerequisite: None. Course is graded A-E.

The emphasis of this course will deal with forensic and general investigative techniques. The student will study the fundamentals of interviews and interrogations and their legal aspects, working with informants and sources, crime scene searches, evidence handling and packaging, chain of custody issues, crime scene reports and sketching. This course will prepare the student for the advance courses of criminalistics.

**FOR-5520 Legal and Evidentiary Aspects of Forensics**

4 credit hours, 5 contact hours (3 hours lecture and 2 hour lab). Prerequisite: None. Course is graded A-E.

The student will study the legal aspects of being a forensic technician. The student will learn to apply legal principles regarding search and seizure, as well as legal principles which serve to protect a defendant's rights to the preservation and/or independent testing of evidence. Additionally, the student will learn evidence rules governing testimony by expert witnesses.

**FOR-5524 Forensic Photography I**

4 credit hours, 6 contact hours (3 hours lecture and 3 hours lab). Prerequisite: None; Open to Forensic Science Technology students only. Course is graded A-E.

This course will teach the student forensic photography and various uses of photography in the criminal justice system. The student will learn the history of photography. There will be hands on experience with the use of various cameras, including the 35mm film camera, digital cameras and videography. Different shutter speeds, f-stops, apertures, depth of field, as well as various lenses and their uses will be utilized. The course will address different film speed uses, and the use of both artificial and natural light. The student will demonstrate the ability to do surveillance, traffic accident photography and videography.

**FOR-5525 Forensic Photography II**

4 credit hours, 6 contact hours (3 hours lecture and 3 hours lab). Prerequisite: C grade (2.00) or better in FOR-5524. Course is graded A-E.

The student will learn lighting techniques, the use of filters, crime scene photography and alternative light sources. Legal aspects of forensic photography will be discussed and court presentation of photographs will be done in a moot court. A crimes scene photographic report will be prepared. The student will develop proficiency in digital photography and be familiarized with the development and printing of film in a darkroom. Aspects of photographic composition will also be covered and painting with light will be performed. Crime, evidence, Ultraviolet, fluorescent and infrared photography will also be covered in this course.

**COTC Course Description Listing – Forensic Science Technology Courses  
2009-2010 Academic Year****FOR-5530 Forensic Criminalistics I**

4 credit hours, 6 contact hours (3 hours lecture and 3 hours lab). Prerequisite: None; however FOR-5510 is recommended. Course is graded A-E.

The student will be involved in the study and application of scientific crime detection techniques with emphasis on collection of physical evidence, fingerprint development, identification of known to unknown fingerprint and palm prints. The student will learn footprint recovery and identification, tool mark comparisons, and blood spatter analysis.

**FOR-5531 Forensic Criminalistics II**

4 credit hours, 6 contact hours (3 hours lecture and 3 hours lab). Prerequisite: None; however FOR-5510 and FOR-5530 are recommended. Course is graded A-E.

The student will be involved in the study of scientific crime detection techniques with emphasis on ballistics, trace metal, gunpowder, residue, hair and fiber evidence, paint comparison and physical comparisons. The student will participate in courtroom testimony and what is required from an expert witness.

**FOR-5532 Introduction to Laboratory Instrumentation**

3 credit hours, 3 contact hours (3 hours lecture and 0 hours lab). Prerequisite: C grade (2.00) or better in (CHM-1700 and CHM-1710 or CHM-1713), and PHY-1721 and concurrent enrollment in FOR-5534. Course is graded A-E.

The student will learn that advances in the technology of laboratory instrumentation have enabled technicians to replace highly trained analytical chemists in the routine work of the forensic laboratory. The purpose of this course is to introduce the student to the basic underlying principles of spectroscopy and chromatography, the techniques of identification and separation science. The student will become familiar with the Beer-Lambert Law which provides the theoretical basis for quantitative spectroscopy. The student will be exposed to the common principles which run through thin-layer, liquid and gas chromatography. The student will learn the basic principles of operation for the gas chromatography detectors, their limits of detectability and their application to analysis for forensic evidence.

**FOR-5534 Instrumentation Analysis**

1 credit hour, 2 contact hours (0 hours lecture and 2 hours lab). Prerequisite: This course must be taken concurrently with FOR-5532. Course is graded A-E.

Through demonstration and hands on experience, the student will expand their theoretical knowledge with practical illustration of spectrophotometers and chromatographs. Through examples of actual casework, the student will apply visible ultraviolet and infrared spectroscopy. The student will also apply gas chromatography to alcohol and drug analysis. The student will gain experience the application of the combined technique, gas chromatography/mass spectroscopy to forensic problems.

**FOR-5535 Forensic Toxicology**

4 credit hours, 6 contact hours (3 hours lecture and 3 hours lab). Prerequisite: C grade (2.00) or better in FOR-5532 and FOR-5534. Course is graded A-E.

The student will learn the adverse effects of drugs and chemicals upon the human body. Forensic toxicology is concerned with not only the identification and quantitation of chemicals, but also the relationship of any levels detected in body fluids or tissues to the impairment of a person's health or behavior. The student will focus on the pharmacology of alcohol and the major drugs of abuse and their detection in breath, blood, urine, and saliva. Demonstrations and laboratory work will be essential to the student's successful completion of this course.

**FOR-5547 Forensic Serology**

4 credit hours, 5 contact hours (3 hours lecture and 2 hours lab). Prerequisite: C grade (2.00) or better in PHY-1721. Course is graded A-E.

The purpose of this course is, through lecture, demonstration and laboratory, to overview the field of serology with an emphasis on forensic application. The course will comprise a review of the formed elements of the blood and other biological fluids such as saliva, perspiration, milk, and semen. The traditional immunological techniques used for identification and blood grouping of fluids and dried stains will be emphasized by lecture and lab. The principles of DNA testing will be explained and demonstrated. The student will learn to apply the most appropriate technique to their specific serological circumstance.

**COTC Course Description Listing – Forensic Science Technology Courses  
2009-2010 Academic Year****FOR-5548 Advanced Crime Scenes**

4 credit hours, 6 contact hours (3 hours lecture and 3 hours lab). Prerequisite: C grade (2.00) or better in FOR-5530 and FOR-5531. Course is graded A-E.

Students are encouraged to take this course in their final quarter of study or as close to it as possible. This course is a capstone experience which involves working as a member of a Crime Scene Investigation Team and working a scenario based case from the crime scene to the court room.

**FOR-5550 Introduction to Fire Origin and Cause**

3 credit hours, 3 contact hours (3 hours lecture and 0 hours lab). Prerequisite: None. Course is graded A-E.

The purpose of this course is to be able to determine the cause of fires and explosions. Finding the point of origin and determining the cause at a scene will be discussed. Familiarity with chemical and physical principles are necessary in these investigations and the conditions which influence the growth, spread, and development will be reviewed. Emphasis will be placed on techniques for debris removal and scene reconstruction and examination of evidence.

**FOR-5551 Forensic Science Seminar**

2 credit hours, 3 contact hours (1 hour lecture and 2 hours lab). Prerequisite: Second year Forensic Science Student. Course is graded A-E.

This course is designed to allow the student to apply their theoretical and laboratory training knowledge to practical experiences in a forensic setting. The major emphasis for this seminar will be on criminalistics. The student will have the opportunity to interact with criminalists and other professionals who are involved daily in the scientific detection, identification and ultimately, the solution of the crime. The lecture portion will be a less formal educational experience in which the student will engage in discussions of current topics relative to the forensic sciences. Guest presenters and field trips may be part of the educational experience.

**FOR-5552 Survey of Fraud in Society, Questioned Documents, and Computer Crimes First Responder**

3 credit hours, 4 contact hours (2 hours lecture and 2 hours lab). Prerequisite: None. Course is graded A-E.

Through lecture, demonstration and hands-on experience the student will be presented with an overview of the field of questioned documents examination, computer crimes first Responder and Fraud in Society. The student will compare handwriting samples, obliterated text and different printing and writing instruments to detect forgeries and frauds. Preparation of affidavits, search warrants, and the techniques of seizing computers and computer related equipment will also be examined. The nature of fraud in society and who commits it will be reviewed. The prevention, detection, and investigation of fraud will also be examined.

**FOR-5553 Fraud Examination**

3 credit hours, 4 contact hours (2 hours lecture and 2 hours lab). Prerequisite: C grade (2.00) or better in ACC-2114. Course is graded A-E.

Fraud examination will cover the principles and methodology of fraud detection and deterrence. The course includes such topics as skimming, cash larceny, check tampering, register disbursement schemes, billing schemes, payroll and expense reimbursement schemes, non-cash misappropriations, corruption, accounting principles and fraud, fraudulent financial statements, and interviewing witnesses. Lectures, case studies, videos, and guest lecturers may be utilized in this class.