

FORENSIC SCIENCE (FOR)

FOR 122 SCIENTIFIC CRIMINAL EVIDENCE ANALYSIS 3, 3/0

Scientific techniques that have been adapted and applied to the detection and investigation of crimes. Collection techniques, analytical processes, and value of scientific evidence from the point of view of forensic scientists. Different disciplines, specialties, and careers available in forensic science. Offered spring only.

FOR 189 TOPIC COURSE

1-3, 1/0

Current topics in Forensic Science. Offered occasionally.

FOR 295 INTRODUCTORY RESEARCH IN FORENSIC SCIENCE

1-3, 0/0

Prerequisite: Instructor Permission. Scholarship or creative work conducted under the supervision of a faculty member. Offered occasionally.

FOR 312 CHEMISTRY AND CRIMINALISTICS

4, 3/3

Prerequisites: FOR 122, MAT 311 and CHE 201. Chemistry as an investigative aid in the process of criminal justice.

Basic chemical, physical, and microscopic techniques used in criminal investigations. Relevant laws and legal issues that impact on scientific evidence. Professional practice and ethics in the field of forensic science. The overall function of the criminalist from the gathering of evidence to the final presentation of expert testimony. Offered fall only.

FOR 389 TOPIC COURSE

1-3, 1/0

Current advanced topics in Forensic Science. Offered occasionally.

FOR 410 PROFESSIONAL PRACTICES IN FORENSIC SCIENCE

3, 3/0

Prerequisite: FOR 312. Examination of aspects of forensic lab practice required for a successful career as a forensic scientist. Introduction to the working environment of forensic laboratories; management's expectations regarding professional and ethical behavior; time management; workflow processes; court testimony. Offered every other spring.

FOR 412 INTERNSHIP IN CRIMINALISTICS

3, 0/0

Prerequisites: FOR 312, CHE 403, permission of instructor, and senior status. Field experience in a forensic laboratory involving routine and research work in forensic chemistry. Note: Police laboratories sometimes require background checks and/or drug screens prior to placement. While not required by the college, these can affect students' abilities to complete the program. Offered every semester.

FOR 414 FORENSIC CHEMISTRY LABORATORY

3, 2/3

Prerequisites: FOR 312, CHE 403 and CHE 404; BIO 303 or BIO 350 (or concurrently). Instruction and laboratory experiences in a wide range of forensic chemistry topics, including experiments in DNA for human identification, identification of illicit drugs, determination of blood alcohol, materials analysis, and arson. Students also receive instruction on the practice of presenting scientific evidence in a courtroom setting. Offered spring only.

FOR 416 CHEMICAL MICROSCOPY

3, 2/3

Prerequisites: FOR 312 and PHY 112. Introductory optical and chemical microscopy for forensic analysis; fundamental theory of microscopy; physical properties of materials; basic topics in optics; operation, varieties, and capabilities of optical and chemical microscopes; applications in analysis of physical features and chemical compositions of trace evidence. Offered every other spring.

FOR 475 CAPSTONE RESEARCH IN FORENSIC CHEMISTRY

3, 1/6

Prerequisites: FOR 312 and CHE 404. Forensic chemistry research on a topic agreed upon by the faculty and student. Creation of a written research plan for investigation of the topic through either laboratory or field research methods. Collection, documentation, and analysis of research data. Preparation of a formal research report and presentation at a conference or seminar. Offered occasionally.

FOR 495 SPECIAL PROJECT

1-3, 0/0

Prerequisite: Faculty project adviser permission. Offered every semester.

FOR 497 FORENSIC MICROCOURSE

1-3, 1/0

Examination of significant disciplinary issues, topics, or practices. Offered occasionally.

Equivalent Course: CHE 497

FOR 499 INDEPENDENT STUDY

3-12, 0/0

Prerequisite: Faculty project adviser permission. Offered every semester.

FOR 588 TOPICS COURSE

3, 3/0

FOR 596 GRADUATE CONFERENCE IN FORENSIC SCIENCE

1-3, 3/0

Participation in a regional, national, or international conference in the field of forensic science overseen by a faculty member. Offered occasionally.

FOR 598 GRADUATE MICROCOURSE

1-3, 0/0

Examination of significant disciplinary issues, topics, or practices

Equivalent Course: CHE 598

FOR 612 PRINCIPLES OF FORENSIC SCIENCE

3, 3/0

Prerequisite: CHE 301 or equivalent. Overview of forensic laboratory procedures and practices. Includes field testing, laboratory screen tests, instrumental analyses, microscopy, molecular identification, blood-alcohol analyses, identification of physical evidence, pattern evidence, crime-scene processing, evidentiary value of chemical analysis, auditing, peer-review procedures, and quality issues. Sampling techniques, data quality, error rates, blind proficiency testing, and their relevance to legal decisions.

FOR 614 FORENSIC APPLICATIONS OF INSTRUMENTAL ANALYSIS

4, 2/6

Prerequisites: CHE 403 or CHE 680 and FOR 612 or CHE 312 or equivalents. Introduction to forensic chemical analysis using representative instrumental techniques, including spectroscopy and chromatography; emphasis on laboratory-based studies for applications of these instruments to provide extensive experience in solving various analytical issues present in forensic laboratories.

FOR 616 MICROSCOPY IN FORENSIC SCIENCE

2, 1/2

Prerequisites: FOR 612 or CHE 312 or equivalents. Introduction to microscopic investigations for forensic pattern evidence and trace analysis; fundamental theory, principles of operation, varieties, and capabilities of optical microscopy and applications in forensics; fundamentals and applications of transmission and scanning electron microscopy for forensic imaging at atomic-scale resolution and chemical analysis; laboratory sections for pattern analysis and trace analysis.

FOR 618 DRUG CHEMISTRY AND TOXICOLOGY

3, 3/0

Prerequisites: CHE 202 and CHE 612 or CHE 312 and CHE 680 or CHE 403 or equivalents. Overview of misused and illegal pharmaceuticals, toxicology, poisons, forensic drug analysis, and illicit drug manufacture. Types, classes, and structures of illicit pharmaceuticals and the laws governing these substances; mechanism of biological activity and toxicological issues of each class; immunoassay technologies for drugs-of-abuse testing analysis; methods of forensic analysis of commonly encountered illegal drugs; and methods of surreptitious manufacture and law enforcement concerns with clandestine laboratories.

FOR 690 MASTERS PROJECT

1-4, 0/0

A study on a problem of special interest planned and executed with consultation and advisement from the instructor and the student's project committee. The project will be submitted in acceptable form according to directions given by the Chemistry Department and presented orally to an audience of Chemistry Department faculty and students.

FOR 721 THESIS/PROJECT CONTINUATION

0, 0/0

FOR 722 THESIS/PROJECT EXTENDED

0, 0/0

FOR 795 RESEARCH THESIS IN FORENSIC SCIENCE

1-12, 0/0

Individual investigation of an original problem in Forensic Science submitted in acceptable form according to directions given by the Chemistry Department and the Graduate School.