

**GRADUATE PROGRAM IN FORENSIC SCIENCES: APPROVED COURSES**  
Updated 7/15/09<sup>1</sup>

**FRNS 5000 Supervised Forensic Research Project and Thesis** *Prerequisites: Consent of major advisor, 5063 Scientific Research, Writing, and Presentation (or equivalent course), and STAT 5013 Statistics for Experimenters I.* Research in forensic sciences for M.S. degree.  
[Independent Study, laboratory course]

**FRNS 5013 Survey of Forensic Sciences** *Prerequisites: None.* Provides overview of various forensic sciences and their relation to presentation of evidence and problems of law. Covers major areas and reviews current guidelines for quality assurance/control, and certification/accreditation. [Web course]

**FRNS 5023 Forensic Examination of Questioned Documents** *Prerequisites: FRNS 5013 Survey of Forensic Sciences<sup>2</sup> or consent of instructor.* Instructs students in functions of questioned document examiners, beyond document analysis to related services and issues. Covers history of field, process for obtaining exemplars, types of document examination, collection/preservation of evidence, and courtroom procedures. (This course does not train the student as a document examiner and in no way certifies or qualifies the student to conduct questioned document analysis at the conclusion of the course.) [Web course]

**FRNS 5033 Forensic Handwriting Examination: Theory and Practice** *Prerequisite: FRNS 5023 Forensic Examination of Questioned Documents and approval of lead instructor for questioned documents.* Theoretical and practical aspects of handwriting as forensic evidence. Covers production of normal and false handwriting, variables in handwriting production, standards of comparison, identification theories, examination methodologies, expression of conclusions, characterization and validation of examiner skills, legal admissibility of handwriting expertise, and challenges to professional practice. [Web course]

**FRNS 5043 Technical Aspects of Forensic Document Examination** *Prerequisite: FRNS 5023 Forensic Examination of Questioned Documents and approval of lead instructor for questioned documents.* Basic theory in visual examination of questioned documents. Includes visual and color theory, measuring tools, instruments, simple microscopy, and photographic techniques. Also provides technical description, theory, operation, and practical use of various instrumentation used in the field such as the Electrostatic Detection Apparatus (ESDA) and Video Spectral Comparator (VSC). [Web course]

**FRNS 5053 Historical Aspects of Forensic Document Examination** *Prerequisites: None.* This course presents historical aspects of forensic document examination. It covers the development of handwriting, the acceptance of document examination expertise in Britain and North America, the early luminaries, and famous cases. [Web course]

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<sup>1</sup> Other courses authorized or pending approval by OSU or the Oklahoma State Regents for Higher Education since this printing may be available. Contact the Graduate Program in Forensic Sciences for more information.

<sup>2</sup> This course may be taken concurrently with prerequisite course.

**FRNS 5063 Scientific Research, Writing, and Presentation** *Prerequisites: Permission from Research Advisor.* Develops scientific and individual writing abilities, especially relative to thesis development around a scientific question. Explores responsible conduct of research, organization and design of various types of scientific writing, effective use of media, prescriptive activities for individual writing problems, and other aspects of presenting research. Some assignments require guidance from the student's research advisor. [Web course]

**FRNS 5073 Quality Assurance in Forensic Science** *Prerequisites: None.* Preparation for the forensic scientist to develop and implement quality assurance and quality control procedures to ensure the excellence of a laboratory. Covers preparation of laboratory procedures and policies, use of appropriate standards and controls, and validation methods for establishing an effective quality assurance program in the laboratory. [Web course]

**FRNS 5083 Ethics in Forensic Leadership** *Prerequisites: None.* Focuses on leadership development for managers of forensic organizations, including examination of leadership and ethics theories, application of theories to problems in forensic settings, and tasks and relational skills for developing effective teams and groups within an ethical framework. [Web course]

**FRNS 5213 Molecular Biology** *Prerequisites: College-level biology.* Develops a solid foundation of knowledge in molecular biology for understanding the concepts of genetic marker analysis, especially DNA typing. [Web course]

**FRNS 5242 Population Genetics** *Prerequisites: FRNS 5513 Forensic Bioscience.* Population genetics relevant to DNA analysis technologies to identify perpetrators of crime. Includes foundation of statistical knowledge in forensic DNA analysis and family relatedness testing, history and application of statistical and population genetic theory to assigning weight to matches in DNA profiles for the court. Students will perform appropriate calculations in sample cases and interpret in layman's terms.

**FRNS 5282 Methods in Forensic Biology and Forensic Toxicology** *Prerequisites: Permission of the instructor.* Advanced-level laboratory course in which students apply knowledge from earlier coursework in a hands-on setting and employ fundamental techniques and methodologies pertinent to forensic biology and forensic toxicology. [Laboratory course]

**FRNS 5413 Forensic Pathology and Medicine** *Prerequisites: None.* Deals with medico-legal investigation of death and injury due to natural causes, accidents, and violence. Covers analysis/investigation of transportation injuries, homicides/suicides due to various causes, rape, or injury; methods for identification; and guidelines for quality control/assurance. [Web course]

**FRNS 5513 Forensic Bioscience** *Prerequisites: FRNS 5213 Molecular Biology or instructor permission, college-level biology and chemistry.* Teaches concepts of identity testing, relating history, theory, application, and quality assurance concepts to the material presented. Covers effects of identity testing in the laboratory. Presents basic concepts in genetics and use in tracing origin of biological samples. [Web course]

**FRNS 5523 Forensic Toxicology** *Prerequisites: None.* Introduces fundamental aspects of forensic toxicology and emphasizes major subfields of postmortem forensic toxicology, human performance toxicology, and forensic drug testing. Also examines methodologies and analytes associated with these three major subfields. [Web course]

**FRNS 5533 Drug Toxicity** *Prerequisites: None.* Introduces fundamental aspects of abused drugs from a toxicological perspective and examines major disciplines of toxicology. Also covers basic principles of toxicology applied to different classes of commonly abused drugs. [Web course]

**FRNS 5613 Criminalistics and Evidence Analysis** *Prerequisites: None.* Introduces crime investigation techniques and tools; analysis, operation, and function of laboratory; application of scientific concepts; instrumentation and microscopy; use of physical evidence; and guidelines for quality control/assurance and accreditation in the gathering of evidence. [Web course]

**FRNS 5622 Advanced Criminalistics** *Prerequisites: FRNS 5073 Quality Assurance in Forensic Sciences, FRNS 5616 Criminalistics and Evidence Analysis, FRNS 5653 Scientific Evidence, FRNS 5000 Research and Thesis, and basic coursework in the speciality area.* Examines practical aspects of criminalistics, duties of crime scene investigator, and techniques/procedures of crime scene processing. Also covers law-enforcement/crime-lab relationships, evidence recovery, and investigation types. One meeting is moot court session. [Laboratory course with collaboration, assigned times]

**FRNS 5653 Scientific Evidence** *Prerequisites: None.* Reviews of ways in which the law, particularly the law of evidence, affects the work of the forensic scientist. Starts with the beginning of the case, most often the crime scene, and works through the legal process up through trial and including appeals and motions for a new trial. Covers, at each stage, legal doctrines of interest to the forensic scientist, such as chain of custody, work product privileges, laying the proper foundation, exhibits, and the standards necessary to obtain a new trial. [Web course]

**FRNS 5713 Forensic Psychology** *Prerequisites: FRNS 5013 Survey of Forensic Sciences.*<sup>3</sup> Introduction to the relationship between the disciplines of law and psychology by examining and contrasting the issues at the interface of both disciplines. Covers legal terminology; criminal behavior; ethical, competency, defense, and testimony issues; insanity defense; polygraph testing; and the role and functioning of legal and mental health systems. [Web course]

**FRNS 5723 Advanced Forensic Psychology** *Prerequisites: FRNS 5013 Survey of Forensic Sciences and FRNS 5713 Forensic Psychology.* Expands on topics covered in FRNS 5713 Forensic Psychology; also covers function of the mental health professional in criminal cases, nature and impact of mental illness on individual life and freedom, reasons behind crimes, gender differences in the criminal justice system, laws pertinent for mental health professionals. [Web course]

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<sup>3</sup> This course may be taken concurrently with prerequisite course.

**FRNS 5913 Forensic Accounting and Fraud Investigation** *Prerequisites: FRNS 5013 Survey of Forensic Sciences.*<sup>4</sup> Introduces concepts and tools used in the fields of forensic accounting and financial fraud investigations. Focuses on aspects of fraud investigation, including overview and types of fraud, indicators, and international investigations. Covers methods for litigation/investigation and compliance issues for expert reports. [Web course]

**FRNS 6010 Forensic Specialization (up to 5 repeats)** *Prerequisites: FRNS 5013 Survey of Forensic Sciences. Additional prerequisites specified by Program Director or major advisor may be required.* Preparation for advanced study in a specialty area of forensics. The study of existing research and methodologies directly related to the individual discipline via computer, literature review, classroom and laboratory experience, and applied training. Courses from the OSU-CHS Biomedical Sciences program or from other campuses may be used to satisfy requirements for this course with the consent of the program director. Existing or planned sections include:

- Section 001 Heavy Metals Toxicity
- Section 002 Neurochemistry
- Section 005 Forensic Pathology Internship
- Section 007 Forensic Directed Readings [Web course]
- Section 010 Readings in General Pathology [Web course]
- Section 011 Readings in Questioned Document Examination [Web course]
- Section 021 Questioned Documents Internship
- Section 022 Forensic Microscopy Credit by Examination
- Section 023 Readings in Forensic Toxicology [Web course]
- Section 026 Forensic Toxicology Internship
- Section 604 Advanced Forensic Toxicology [Web course]
- Section 605 Forensic Microbiology [Web course]
- Section (TBA) Forensic Biology (DNA) Internship
- Section (TBA) Forensic Psychology Internship

**FRNS 6043 Forensic Management and Organizational Development** *Prerequisites: FRNS 5013 Survey of Forensic Sciences and FRNS 5073 Quality Assurance in Forensic Science.* Application of managerial and organizational leadership skills to the demands of forensic sciences, including attention to the human resource/relations and development issues. Attention also given to interagency cooperation, quality control/assurance, certification/accreditation issues, and internal security. [Web Course]

**BIOM 5013 Medical Biostatistics**<sup>5</sup> *Prerequisites: Graduate standing.* Fundamentals of biostatistics including parametric and non-parametric statistical methods with applications to biomedical research, clinical epidemiology and clinical medicine. [On-campus course, offered fall semester, even years]

**HCA 5023 Human Resources in Health Care & Public Administration** Review, discuss and analyze current issues, rules, practices and governance of human resources in health care and public administration. [Available on the Web or on campus in Stillwater or at OSU-Tulsa]

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<sup>4</sup> With permission from the advisor and instructor, this course may be taken concurrently with Prerequisite course.

**SOC 5990 Advanced Problems in Sociology: Criminal Behavior Analysis** *Prerequisite(s):* *Permission of instructor.* Graduate level analysis of special problems and issues in sociology not covered in other department offerings. [Available on the OSU main campus in Stillwater]

**STAT 5013 Statistics for Experimenters I**<sup>5</sup> *Prerequisites:* *Graduate standing and MATH 1513 (college algebra).* Introductory statistics course for graduate students. Descriptive statistics, basic probability, probability distributions, fundamentals of statistical inference, hypothesis testing, regression, one-way classification, analysis of variance, comparative experiments, correlations and linear regression, introduction to categorical data analysis. [Available at OSU campuses in Tulsa and in Stillwater; Web option available through OSU Arts & Sciences Extension]

#### **POSSIBLE ELECTIVES FROM OTHER PROGRAMS:**

**BIOM 6543 Neurochemical Toxicology** *Prerequisites:* *BIOM 5215 Medical Biochemistry and BIOM 5616 Medical Microbiology and Immunology [or equivalent courses, if approved by instructor].* The fundamental aspects of neurochemistry and neurotoxicology using both cellular and molecular approaches in neurotoxicology will be emphasized using the effects of exogenous toxins such as heavy metals, pesticides, solvents and drugs of abuse and their role in the pathogenesis of neurological toxicity. [Offered on campus at OSU Center for Health Sciences]

**BIOM 5215 Medical Biochemistry** Broad survey of the chemical classes and metabolic processes that are consistent with the normal functions of biosystems. Functions and interrelationships of these processes in human metabolism to provide a foundation for understanding the chemistry of disease states when discussed in the second-year program. [Offered on campus at OSU Center for Health Sciences]

**BIOM 5415 General Pathology I** *Prerequisite(s):* *Graduate standing.* The reaction of the body to diseases and the description and identification of basic disease processes in terms of the morphology, physiology, and chemistry. Major processes such as cell injury, cell death, healing, neoplasia, inflammation, and diseases of development and aging. Basic disease processes and ability to recognize and describe basic disease processes from gross and microscopic specimens. [Offered on campus at OSU Center for Health Sciences]

**BIOM 6010 Topics in Biomedical Sciences** *Prerequisite(s):* *Consent of instructor.* Tutorials in areas of biomedical sciences not addressed in other courses.

**BIOM 6413 Graduate General Pathology** *Prerequisite(s):* *Graduate standing, BIOM 5215 Medical Biochemistry, and instructor permission are required; BIOM 5616 Medical Physiology and BIOM 5316 Medical Microbiology and Immunology are recommended.* An introduction for biomedical researchers to disease processes, from etiologies to cell and tissue responses that manifest as diseases. [Offered on campus at OSU Center for Health Sciences]

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<sup>5</sup> Meets the requirement for a statistical analysis course for the M.S. program; BIOM 5013 requires advisor approval.

**GRAD 5992 Succeeding in the Professoriate** *Prerequisites: Graduate standing and permission of Director of College Teaching Certificate program.* Preparation for doctoral students who wish to pursue careers in academia. Focuses on university-level teaching and scholarship. Prepares a foundation course for doctoral students in the University Faculty Preparation Certificate program. [Available at the OSU main campus in Stillwater]

**PLP 5343 Principles of Plant Pathology Lab 2.** *Prerequisite(s): BOT 1404 or BOT 3463 or MICR 2125 or PLNT 2013.* Introduction to basic principles and concepts of plant pathology, including the nature, cause and control of biotic and environmentally induced plant diseases. Offered in combination with PLP 3343. No credit for both 3343 and 5343. Graduate students will be expected to complete extra assignments. [Available at the OSU main campus in Stillwater]

**SOC 5573 Seminar in Victimology** Critical overview of contemporary theory and research on victimology. Relationships between victim and offenders, social institutions such as media, police, business, advocacy groups, and various social movements. [Available through the OSU main campus in Stillwater]

**SOC 5990 Advanced Problems in Sociology: Advanced Forensics** *Prerequisite(s): Permission of instructor.* Graduate level analysis of special problems and issues in sociology not covered in other department offerings. [Web course available through the OSU main campus in Stillwater; one required Saturday meeting]

**SOC 6763 Theory in Criminal Behavior Analysis** Critical overview of contemporary theory and research on criminal behavioral analysis. [Available at the OSU main campus in Stillwater]

**FEMP courses from OSU's Fire and Emergency Management program** may also qualify as electives. Options include one-week summer and intercession classes available on campus, usually for three credit hours. See <http://femp.okstate.edu/> for course listings and registration information. Advance approval from the advisor is required.