FORENSIC SCIENCE (FRSC)

FRSC 202. Crime and Science. 3 Hours.
Semester course; 3 lecture hours. 3 credits. Introduces the scientific theory, concepts and practices used in any physical science by relating them to the analysis of physical evidence performed in forensic laboratories and the fundamentals of crime scene investigation, and their relationship to the criminal justice system and criminal investigations. Not applicable for credit toward the B.S. in Forensic Science.

FRSC 231. Programming for Digital Forensics. 2 Hours.
Semester course; 1 lecture and 2 laboratory hours. 2 credits. Concurrent prerequisite: CMSC 255. A study of programming applied to digital forensics. The course begins with the command-line interface and concludes with programming for data transcoding and task automation. Students will gain practical experience interpreting various data structures and learn skills to develop forensic tools of their own.

FRSC 291. Topics in Forensic Science. 1-3 Hours.
Semester course; 1-3 lecture hours. 1-3 credits. May be repeated with different topics for a maximum of six credits. A study of selected topics in forensic science. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

FRSC 300. Survey of Forensic Science. 3 Hours.
Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151, BIOZ 151, CHEM 102, CHEZ 102 and UNIV 112, each with a minimum grade of C. Concurrent prerequisites: CHEM 301 and CHEZ 301, and UNIV 200 or HONR 200. Enrollment is restricted to forensic science majors or by permission of instructor. Introduces the theory, concepts and practices used in the analysis of physical evidence performed in crime laboratories, and the fundamentals of crime scene investigation. Also introduces ethical and quality assurance issues of crucial importance in modern crime laboratories.

FRSC 309. Scientific Crime Scene Investigation. 3 Hours.
Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: FRSC 300 with a minimum grade of C. Enrollment is restricted to forensic science majors or by permission of the instructor. Provides scientific theory of crime scene investigation and crime scene reconstruction and basic knowledge of proper crime scene protocol and evidence processing techniques. Includes the processes for documentation, collecting and preserving physical evidence.

FRSC 310. Forensic Anthropology. 3 Hours.
Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH 210 or FRSC 300 with a minimum grade of C. A comprehensive overview of forensic anthropology including its development and the theory and methodology on which it is based. Crosslisted as: ANTH 310.

FRSC 325. Forensic Medicine. 3 Hours.
Semester course; 3 lecture hours. 3 credits. Prerequisite: FRSC 300 with a minimum grade of C. Enrollment is restricted to forensic science majors or by permission of instructor. An investigation of topics in death scene investigations as well as autopsy findings associated with natural and unnatural deaths.

FRSC 330. Introduction to Digital and Multimedia Forensic Science. 3 Hours.
Semester course; 2 lecture and 2 laboratory hours. 3 credits. A broad overview of digital forensics. Covers the foundational topics of terminology, methodologies, devices, operating systems and file systems, tools and software, standards, ethics, and challenges. Provides an introduction to the various areas of focus within the digital and multimedia sciences, including computer, mobile, video, audio and network forensics, as well as the various modalities in which it is practiced (i.e., public vs. private sector).

FRSC 351. Forensic Science Service-learning. 2 Hours.
Semester course; 2 lecture hours. 2 credits. May be repeated for a maximum of four credits. Prerequisites: FRSC 300 and at least one additional FRSC/Z course, each with a minimum grade of C. Enrollment is restricted to forensic science majors or by permission of instructor. Provides an opportunity to learn about the community's schools and how to teach forensic science concepts to school-aged students. Each week, VCU students will provide hands-on lab activities in community-based programs to reinforce lessons learned through their school curricula. Reflective writing, partner assignments and a final presentation are required, in addition to 20 community partner hours. VCU students will improve their ability to explain forensic concepts to those with differing scientific backgrounds, have increased confidence when addressing audiences and deepen their understanding of civic responsibility.

FRSC 365. Forensic Microscopy. 3 Hours.
Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: FRSC 300 with a minimum grade of C. An in-depth course in the theory and practical application of microscopy to the examination, identification and individualization of physical evidence submitted to forensic laboratories.

FRSC 375. Forensic Evidence, Law and Criminal Procedure. 3 Hours.
Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151, BIOZ 151, CHEM 102, CHEZ 102 and UNIV 112, each with a minimum grade of C. Concurrent prerequisites: FRSC 300, CHEM 301 and CHEZ 301; and UNIV 200 or HONR 200. Enrollment is restricted to forensic science majors or by permission of the instructor. The law of criminal procedure and rules of evidence as applied to forensic science. Topics will include scientific versus legal burdens of proof, legal terminology and trial procedure.

FRSC 385. Forensic Serology. 3 Hours.
Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: CHEM 301 and FRSC 300, each with a minimum grade of C. Examines the application of basic chemical, biological, immunological and microscopic laboratory techniques to the examination and identification of body-fluid stains, including both presumptive and/or confirmatory identification of blood, semen, saliva, urine and feces. Applies methods that are used in forensic laboratories to identify the species of origin and includes a review of advanced methods for automated serological analysis. Laboratory exercises will supplement lectures to give students practical knowledge of the laboratory procedures.

FRSC 391. Topics in Forensic Science. 1-3 Hours.
Semester course; 1-3 lecture hours. 1-3 credits. A maximum total of six credits for all forensic science topics courses may be applied to the major. Prerequisite: FRSC 300 with a minimum grade of C. A study in selected topics in forensic science. See the Schedule of Classes for specific topics to be offered each semester and additional prerequisites.

FRSC 400. Forensic Chemistry. 4 Hours.
Semester course; 2 lecture and 4 laboratory hours. 4 credits. Prerequisites: CHEM 409 and CHEZ 409, each with a minimum grade of C. Examines core principles and instrumentation used in forensic chemistry applications to include microchemical tests, gas chromatography, liquid chromatography, spectroscopy and mass spectrometry, with emphasis on forensic casework. These topics may include accelerants, explosives, paints, polymers and drug analysis. Students will gain experience in experimental design, operation and troubleshooting of instrumentation, as well as the analysis and interpretation of chromatographic and spectroscopic data sets.

FRSC 410. Forensic Pattern Evidence. 3 Hours.
Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: FRSC 309 with a minimum grade of C. Enrollment is restricted to forensic science majors or by permission of the instructor. Covers topics in pattern evidence analysis including analysis of latent prints and impression evidence of footwear and tire treadmarks as applied to forensic casework. Covers both the theoretical and practical aspects using lectures and laboratory exercises focusing on the visualization, examination and interpretation of pattern evidence.

FRSC 412. Forensic Analysis of Firearms and Toolmarks. 3 Hours.
Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: FRSC 300 with a minimum grade of C. Enrollment is restricted to forensic science majors or by permission of the instructor. An investigation of topics in firearms and toolmark examination for forensic applications. Covers both theoretical and practical aspects using lectures and laboratory exercises.

FRSC 438. Forensic Molecular Biology. 3 Hours.
Semester course; 3 lecture hours. 3 credits. Prerequisite: BIOL 310 with a minimum grade of C. Provides an understanding of molecular biology testing methodologies as applied to analysis of forensic samples. Current topics in forensic DNA analysis will include quality assurance, DNA databanking, contemporary research and population genetics. Crosslisted as: BIOL 438.

FRSC 445. Forensic Toxicology and Drugs. 4 Hours.
Semester course; 2 lecture and 4 laboratory hours. 4 credits. Prerequisites: CHEM 301, CHEM 302, CHEZ 301 and CHEZ 302, each with a minimum grade of C. Provides a comprehensive overview of the basic principles of drug analysis and forensic toxicology. Students will perform hands-on lab exercises in these areas. Students will learn to identify the controlled substances and toxic agents most commonly abused and/or encountered in criminal investigations, including issues of interpretation and impairment.

FRSC 490. Professional Practices in Forensic Science. 3 Hours.
Semester course; 3 lecture hours. 3 credits. Prerequisites: FRSC 300; and one additional FRSC or FRSZ course, each with a minimum grade of C. Enrollment is restricted to seniors in forensic science with at least 85 credit hours toward the degree. An examination and evaluation of historical and current issues in the scientific analysis of physical evidence in criminal investigations. Individual and group activities relating to professional practices (ethics, quality control and testimony) of forensic scientists.

FRSC 492. Forensic Science Independent Study. 3 Hours.
Semester course; 1-3 independent study hours. 0-3 credits. Prerequisites: CHEZ 301 and FRSC 300, each with a minimum grade of C. May be repeated for a maximum of six credits. Enrollment is restricted to forensic science majors with at least sophomore standing and a minimum GPA of 2.5. Independent studies must be research-based. A determination of the amount of credit (including expected time commitments) and the written permission from both the instructor and the independent study coordinator/program director must be procured prior to registration for the course.

FRSC 493. Forensic Science Internship. 3 Hours.
Semester course; 1-3 field experience hours. 0-3 credits. Prerequisite: FRSC 300 with a minimum grade of C. Enrollment is restricted to forensic science majors with a minimum GPA of 2.75. Through an internship at an approved organization, the student will obtain a broader, more practical knowledge of forensic science and its applications. A determination of the amount of credit (including expected time commitments) and the written permission from both the internship supervisor and the internship coordinator/program director must be procured prior to registration for the course. Written progress and a final report are required. Graded as pass/fail.

FRSC 505. Forensic Entomology. 3 Hours.
Semester course; 2 lecture and 2 laboratory hours. 3 credits. Course focuses on proper collection, preservation and identification of entomological evidence. Students collect entomological evidence from a mock crime scene and utilize these specimens for estimation of minimum postmortem interval. There is a significant laboratory component.

FRSC 510. Developmental Osteology. 3 Hours.
Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: FRSC 300; ANTH 307 and ANTZ 307; ANTH 310; graduate standing in forensic science; or permission of instructor. Examines the human musculoskeletal system and its development from an embryonic state to the adult form. Students learn the developmental course of each bone in the human skeleton and those of the associated soft tissue structures. Students are provided with training in the recognition of skeletal elements and bony landmarks, siding skeletal elements (and fragments thereof), knowledge of muscle structure and function and knowledge of nervous and venous structures associated with bony landmarks. Developmental defects and trauma associated with birth and child abuse are discussed. Juvenile age estimation from bones and radiographic images are emphasized.

FRSC 515. Forensic Anthropology Applications. 3 Hours.
Semester course; 2 lecture and 2 laboratory hours. 3 credits. Focuses on estimation of the biological profile in human identification, the analysis of perimortem trauma and writing of case reports. The laboratory component will cover all aspects of the course including providing practice for age and race estimation.

FRSC 520. Forensic Fire Investigation. 3 Hours.
Semester course; 3 lecture hours. 3 credits. Prerequisite: FRSC 375 with a minimum grade of C (for undergraduate students), FRSC 670 or equivalent. Examines the specialized field of forensic fire investigation including on-scene investigation, fire theory, accelerant-assisted burn patterns and expert-witness testimony.

FRSC 525. Introduction to Digital Forensics. 3 Hours.
Semester course; 3 lecture hours. 3 credits. Enrollment is restricted to forensic science or information systems majors. An in-depth study of digital forensics. Covers foundational concepts, evidentiary procedures, tools and software, current challenges, analysis techniques and report production, the legal system and expert testimony, standards and ethical considerations, as well as the vast community of practitioners and resources/opportunities in the field. The different disciplines within the field of digital forensics and the various modalities in which it is practiced will be reviewed.

FRSC 530. Advanced Forensic Computer and Storage Device Analysis. 3 Hours.
Semester course; 2 lecture and 3 laboratory hours. 3 credits. Corequisite: FRSC 525. Enrollment is restricted to forensic science majors. The course is an advanced study of the application of digital forensic methods and tools for the analysis of computer and storage devices. Covers operating and file system artifacts found on modern computer and storage devices, as well as the analytical techniques used in examinations (i.e., collection, acquisition, data structure interpretation, analysis, data recovery). Both theoretical and practical aspects will be covered. There is a significant hands-on laboratory component, including comprehensive working knowledge and extensive practical applications with mock crime scenes.

FRSC 531. Hardware Forensics and Advanced Acquisition. 3 Hours.
Semester course; 2 lecture and 3 laboratory hours. 3 credits. Prerequisites: FRSC 431 and FRSC 432, each with a minimum grade of C; or FRSC 530. Enrollment is restricted to seniors in forensic science with minimum of 85 credit hours toward the degree or graduate students in forensic science. Establishes a strategy of approach for dealing with damaged, difficult or uncommon devices. Provides comprehensive working knowledge and hands-on experience with the hardware of digital devices, including research and troubleshooting practices, teardown skills, repair and soldering techniques, and the application of advanced acquisition methods.

FRSC 565. Scientific Crime Scene Investigation. 3 Hours.
Semester course; 3 lecture and/or laboratory hours. 3 credits. Presents the theory and techniques of scientific crime scene investigation including: recognition, documentation, collection and enhancement of physical evidence. A comprehensive introduction to the use of physical evidence for crime scene reconstruction is presented.

FRSC 566. Advanced Crime Scene Investigation. 3 Hours.
Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: FRSC 309 with a minimum grade of C (for undergraduate students), FRSC 565 or equivalent. An advanced study of the methods and techniques of crime scene investigation with an emphasis on crime scene reconstruction by the use of physical evidence. Course will include extensive practical applications with mock crime scenes.

FRSC 570. Forensic Science Seminar. 1 Hour.
Semester course; 1 lecture hour. 1 credit. May be repeated for a maximum of 3 credits. A seminar course featuring presentations by faculty, crime laboratory staff, students and visiting lecturers. Instruction includes discussions of research and developments and current topics in various forensic science disciplines and related fields. Graded as S/U.

FRSC 580. Applied Statistics for Forensic Science. 3 Hours.
Semester course; 3 lecture hours. 3 credits. Prerequisite: STAT 210, STAT 212 or equivalent statistics knowledge; or graduate standing in forensic science. The course will focus on the forensic applications of data visualization methods, hypothesis testing, analysis of variance, correlation measures, regression, multivariate analyses and concepts in database "matching" procedures. Techniques discussed will include ANOVA, MANOVA, principal component analysis, non-metric multidimensional scaling, discriminant function analysis and machine learning/neural network analysis.

FRSC 581. Forensic Analysis of Fire Debris and Explosive Evidence. 3 Hours.
Semester course; 2 lecture and 3 laboratory hours. 3 credits. Prerequisites: CHEM 409, CHEZ 409 and FRSC 365; or FRSC 671, FRSZ 671, FRSC 673 and FRSZ 673. Presents the collection, analysis and interpretation of ignitable liquids and explosives as they are applied in forensic casework. Covers the theoretical and practical aspects. Laboratory exercises include hands-on instruction with appropriate instrumentation and techniques, including stereomicroscopy, gas and ion chromatography, GC-MS, thin layer chromatography, HPLC and FT-IR.

FRSC 582. Forensic Analysis of Paint and Fiber Evidence. 3 Hours.
Semester course; 2 lecture and 3 laboratory hours. 3 credits. Prerequisites: CHEM 409, CHEZ 409 and FRSC 365; or FRSC 671, FRSZ 671, FRSC 673 and FRSZ 673. Covers topics in polymer analysis including collection, classification and analysis of paint and fiber evidence as applied to forensic casework. The course covers the theoretical and practical aspects, using lectures and laboratory exercises. Laboratory exercises include hands-on instruction with appropriate instrumentation and techniques, including stereomicroscopy, microchemical testing, microspectrophotometry, fluorescence microscopy, FT-IR and polarizing light microscopy.

FRSC 591. Topics in Forensic Science. 1-3 Hours.
Semester course; variable lecture hours. 1-3 credits; maximum of 6 credits for all forensic science topic courses may be applied to major. Prerequisite: graduate standing in the forensic science program or permission of instructor required for enrollment. A study in selected topics in forensic science. See the Schedule of Classes for specific topics to be offered each semester and additional prerequisites.

FRSC 607. Forensic Taphonomy. 3 Hours.
Semester course; 2 lecture and 2 laboratory hours. 3 credits. Focuses on the process and sequence of human decomposition, as well as the burial, water disposal and surface dispersal of human remains. The course covers current issues in taphonomic research and practical application, including both domestic and international examples of mass disasters and mass graves. An understanding of the principles of archaeological stratigraphy is an integral part of the course. There is a significant field work and laboratory component.

FRSC 610. Forensic Video and Multimedia Analysis. 3 Hours.
Semester course; 2 lecture and 3 laboratory hours. 3 credits. Prerequisite: FRSC 525. Enrollment is restricted to forensic science majors. An advanced study of the core principles of forensic video and multimedia analysis. Students will learn the proper methodology for obtaining video evidence from digital devices, techniques for clarification of digital images, proper workflow for comparison and authentication analysis, and how to perform redactions and produce annotated video presentations for the courtroom through practical exercises.

FRSC 611. Cybersecurity, Networking and Ethical Hacking for Forensic Applications. 3 Hours.
Semester course; 2 lecture and 3 laboratory hours. 3 credits. Concurrent prerequisite: FRSC 525. Enrollment is restricted to forensic science majors. This course is an introduction to computer network forensics, incident response and penetration testing. Covers cyber security infrastructures, hardware, terminology and methodology. Networking protocols and models will be introduced and examined for vulnerabilities and exploitation vectors. Legal considerations will be discussed. Theoretical and practical aspects of security architectures and ethical hacking will be covered. There is a significant hands-on laboratory component.

FRSC 612. Advanced Forensic Mobile and IoT Device Analysis. 3 Hours.
Semester course; 2 lecture and 3 laboratory hours. 3 credits. Prerequisite: FRSC 525. Corequisite: FRSC 530. Enrollment is restricted to forensic science majors. This course is an advanced study of the application of digital forensic methods and tools for the analysis of mobile and "Internet of Things" devices. Covers proper evidence handling, detailed device acquisition techniques and in-depth examination of digital artifacts for Android, Apple and other operating systems. Native and third-party application structures are examined along with the underlying data structures that enable them. Both theoretical and practical aspects will be covered. There is a significant hands-on laboratory component, including comprehensive working knowledge and extensive practical applications with mock crime scenes.

FRSC 613. Applied Forensic Digital and Multimedia Analysis. 3 Hours.
Semester course; 2 lecture and 3 laboratory hours. 3 credits. Prerequisites: FRSC 610 and FRSC 612. Enrollment is restricted to forensic science majors. An advanced study of the methods and techniques of digital forensics, covering topics in computer, mobile, video/image and audio examination and analysis as applied to forensic casework. Both theoretical and practical aspects will be covered. There is a significant hands-on laboratory component, including comprehensive working knowledge and extensive practical applications with mock crime scenes.

FRSC 644. Analytical Considerations in Forensic Toxicology. 3 Hours.
Semester course; 2 lecture and 3 laboratory hours. 3 credits. Lecture and laboratory will focus on the development and validation of advanced analytical methods in forensic toxicology. Data analysis and interpretation and the application of statistical tools will be discussed. Lectures will also provide the fundamentals of pharmacokinetics and toxicokinetics and dynamics as they pertain to forensically relevant chemicals and psychoactive substances.

FRSC 645. Applications in Forensic Toxicology. 3 Hours.
Semester course; 2 lecture and 3 laboratory hours. 3 credits. Prerequisite: FRSC 644. Lecture and laboratory focused on the toxicokinetics and toxicodynamics of categories and specific chemicals and psychoactive substances. Sample preparation, instrumental analysis and professional practices relevant to post-mortem toxicology, surveillance drug testing and drug-facilitated crimes will be discussed.

FRSC 660. Toolmark Examinations. 3 Hours.
Semester course; 2 lecture and 3 laboratory hours. 3 credits. Covers topics in toolmark examination and identification as applied to forensic casework. The course covers both the theoretical and practical aspects, using lectures and laboratory exercises.

FRSC 661. Analysis of Pattern Evidence. 3 Hours.
Semester course; 2 lecture and 3 laboratory hours. 3 credits. Covers topics in pattern evidence analysis including analysis of latent prints and other patterned evidence as applied to forensic casework. The course covers both the theoretical and practical aspects, using lectures and laboratory exercises focusing on the collection, analysis and interpretation of pattern evidence.

FRSC 662. Firearm Identification. 3 Hours.
Semester course; 2 lecture and 3 laboratory hours. 3 credits. Covers topics in firearm identification as applied to forensic casework. The course covers both the theoretical and practical aspects, using lectures and laboratory exercises.

FRSC 663. Forensic Medicine. 3 Hours.
Semester course; 3 lecture hours. 3 credits. Covers the fundamentals of forensic medicine including topics such as forensic death investigations, postmortem changes, time-of-death determinations, identification of unknown human remains and the forensic pathology of natural and traumatic deaths in adults and children. The characteristics and diagnosis of various types of trauma as well as the characteristics of common natural diseases that cause sudden death will be presented.

FRSC 670. Forensic Evidence and Criminal Procedure. 3 Hours.
Semester course; 3 lecture hours. 3 credits. Presents the law of criminal procedure and rules of evidence as applied to forensic science. Explores issues of scientific versus legal burdens of proof, legal terminology and trial procedure.

FRSC 671. Instrumentation in Forensic Chemistry. 2 Hours.
Semester course; 2 lecture hours. 2 credits. Enrollment is restricted to students in the forensic science program. Theory and applications of chromatography, mass spectrometry and spectroscopy as used in modern crime laboratories. Instruction will focus on instrumental analysis as applied to drug analysis, toxicology, fire debris identification and general trace evidence examination.

FRSC 672. Advanced Drug Analysis. 3 Hours.
Semester course; 3 lecture and/or laboratory hours. 3 credits. Isolation and identification of abused drugs emphasizing the analysis of unknowns, problems encountered in analysis and chain of custody issues.

FRSC 673. Forensic Microscopy. 2 Hours.
Semester course; 2 lecture hours. 2 credits. Establishes the foundation for the theory of microscopy. The knowledge acquired in this course can be applied to forensic disciplines such as firearms examinations, forensic biology, controlled substances, questioned documents and trace evidence.

FRSC 675. Forensic Serology and DNA Analysis. 2 Hours.
Semester course; 2 lecture hours. 2 credits. Presents the theory and methodology used for the examination and identification of body fluid stains and determination of species. Provides students an introduction to the theory and methodology of forensic DNA analysis as well as forensic DNA quality control issues. Instruction will focus on molecular biology techniques as they are applied in a forensic DNA crime laboratory setting.

FRSC 676. Advanced Forensic DNA Analysis. 3 Hours.
Semester course; 2 lecture and 3 laboratory hours. 3 credits. Focuses on the specific principles and modern procedures used for analysis of forensic nuclear and mitochondrial DNA evidence. Other topics include current research and development for forensic DNA instrumentation and applications, statistical interpretation of results and case report writing. Students gain individualized, hands-on experience with DNA procedures and instrumentation in the laboratory exercises. Students will process mock forensic casework.

FRSC 677. Professional Practices and Expert Testimony. 3 Hours.
Semester course; 3 lecture hours. 3 credits. Prerequisite: must have successfully completed a minimum of 18 credit hours in the forensic science master's degree program. Topics related to professional practices in the forensic science field will be covered, including ethics, bias, quality assurance, laboratory management and professional development. Individual and group activities relating to these topics will be completed. Additionally, this course will examine forensic expert testimony in the courtroom, communication of scientific findings to a general audience, trial preparation and cross-examination in moot court format.

FRSC 680. Forensic Psychology. 3 Hours.
Semester course; 3 lecture hours. 3 credits. Guilty mind requirements in criminal law. Competency to stand trial, insanity defense, mental disorder and crime. Behavioral profiling of serial murders and sex offenders. Issues in the use of clinical and statistical prediction methods in criminal justice. Crosslisted as: CRJS 680.

FRSC 686. Emerging Molecular Applications for Forensic Biology. 3 Hours.
Semester course; 3 lecture hours. 3 credits. Prerequisite: FRSC 676. Emerging forensic molecular technologies as well as molecular applications for nontraditional forensic needs will be covered. Emphasis will be given to current research and to technologies most likely to be implemented in forensic laboratories. Molecular applications may include those that involve analysis of DNA, RNA, protein, or other cell macromolecules and/or those that use advanced molecular tools for separation, detection, manipulation, identification, imaging and analysis. Students gain individualized experience in literature research, in summarization/simplification of technical information and in oral presentation.

FRSC 690. Scientific Writing. 1 Hour.
Semester course; 1 lecture hour. 1 credit. Enrollment restricted to students in the M.S. in Forensic Science program. Focuses on scientific writing techniques, including abstracts, posters, review articles and research proposals. Emphasis will be placed on writing for scientific journals in forensic science and other peer-reviewed journals.

FRSC 692. Forensic Science Independent Study. 1-3 Hours.
Semester course; variable hours. 1-3 credits. Maximum credit for all independent study applicable to degree is 6 credits. The amount of credit must be determined, and written permission of instructor and program director must be obtained prior to registration. This course is designed to provide an opportunity for independent laboratory research in an area of forensic science or related scientific discipline. The end products of this experience will include an oral presentation at a campus seminar and a written report.

FRSC 693. Current Topics in Forensic Science. 1 Hour.
Semester course; 1 lecture hour. 1 credit. May be repeated for credit. A course designed to develop skills in reading journal manuscripts and delivering oral presentations in conjunction with an in-depth study of a current topic in forensic science. Student will conduct library research, present talks and lead discussions on the selected topic. See the Schedule of Classes for specific current topics course to be offered each semester and prerequisites.

FRSC 792. Research Techniques. 1 Hour.
Semester course; 3 laboratory hours. 1 credit. Enrollment restricted to students with graduate standing in forensic sciences and with permission of faculty mentor. Application of basic laboratory methods used in forensic science to the investigation of topics of interest. Emphasis on experimental design, data collection and analysis, communication skills, and critical thinking. Graded as Satisfactory/Unsatisfactory.

FRSC 793. Directed Research in Forensic Science. 1-3 Hours.
Semester course; 1-3 practicum hours. 1-3 credits. May be repeated for credit with up to 6 credits counted toward the degree requirements. Enrollment restricted to students in the forensic science master's degree program with permission of the instructor. A capstone course in which students will conduct independent, original laboratory research in a forensic specialization area of interest, while also gaining practical experience in crime laboratory practices and methods. A minimum of 300 hours of laboratory research and a minimum of three credits are required for graduation.