Advanced concepts in forensic science through presentation of journal articles, case studies, and research findings. FRNSC 541 Forensic Seminar Series (1) Classroom presentations and discussions will focus on different aspects of forensic science as found in current journal articles, casework studies, and current research projects. In this way, the students will be introduced to concepts, technologies, and methodologies that can be applied in forensic crime laboratories today or in the near future. The classroom discussions will include exercises designed to develop critical thinking skills. At the end of the course, students will have gained an understanding or better understanding of a number of different forensic science concepts. The course is a 500-level forensics course required for the Master of Professional Studies in Forensic Science degree program.

FRNSC 821: Forensic Molecular Biology II
4 Credits

Advanced concepts and application of molecular biology techniques to the analysis of biological evidence collected at crime scenes. FRNSC 821 Forensic Molecular Biology II (4) Classroom discussions will expand on the application of forensic DNA analysis using all market types (STR, Y-STR, and mtDNA), including interpretation of complex profiles and mixtures, advanced understanding of instrument operation, and presentation of DNA results in the courtroom. Students will be introduced to technologies that could be applied in forensic laboratories in the near future (e.g., SNP's, micro-capillary arrays, microchips), and will gain an advanced understanding of how forensic DNA laboratories operate and are managed; i.e., quality assurance programs, facility security, proficiency testing programs, basic budgetary and financial issues, and other areas of interest. The laboratory exercises will reflect classroom discussions and students will be expected to prepare courtroom ready materials (data, documents, and demonstrations). The students will be responsible for setting up and running the laboratory in a similar manner to how a real crime laboratory is run. Many of the classroom discussions will be problem solving exercises designed to emphasize specific applications of laboratory analysis. At the end of the course, students will have mastered advanced screening techniques and the three major forensic DNA methods for analyzing biological evidence. Additionally, they will be prepared to work in a forensic DNA crime laboratory, understanding quality assurance, accreditation, and other areas of importance. In the laboratory, students will have analyzed difficult sample types, interpreted complex DNA profiles, and prepared the evidence for advanced levels of courtroom testimony. The proposed course is relevant to any student in the forensic sciences who has an interest in obtaining employment in a local, state or federal law enforcement agency and/or crime laboratory facility. This is an 800-level forensics course that will be required for students in the Master of Professional Studies (MPS) in Forensic Science degree program who are interested in forensic biology.

Prerequisite: FRNSC421W

FRNSC 831: Forensic Chemistry II
4 Credits

Advanced chemical techniques in forensic science, including examination of complex trace evidence and advanced instrumental analysis. FRNSC 831 Forensic Chemistry II (3) The purpose of this course is to provide students with rigorous and comprehensive exposure to the techniques and methods used in private, state and federal crime labs in the analysis of trace evidence. The course thoroughly integrates lecture and laboratory activities to explore the history, controversies, and current
issues related to each topic. The laboratory component incorporates skill-
building exercises with open-ended guided-inquiry laboratory exercises
and a semester-long laboratory- and literature-based research project.
The course consists of 2 three-hour laboratories per week.

Prerequisite: FRNSC427W and FRNSC415W

FRNSC 894: Research Projects in Forensic Science

1-12 Credits/Maximum of 12

Supervised student research projects identified on an individual or small-
group basis.