Advanced Instrumental Analysis I  
FOS 721  
30 HOURS LECTURE, 8 HOURS LABORATORY, 5 CREDITS. OFFERED FALL SEMESTER

The purpose of this course is to introduce the student to the use of chemical instrumentation and spectrophotometric techniques for the analyses of physical evidence materials of forensic import. The course includes lectures and problem sessions and has as a critical portion of hands-on laboratory sessions. The successful student will understand the fundamental use and operation of certain types of chemical instrumentation and their application to forensic analytical problems. He/she will also be able to choose the proper technique to successfully analyze a material, and increase his/her knowledge and understanding of the analytical approach and interpretation of quantitative data by proper calibration techniques.

The lectures include the descriptions of various instruments, including their designs, the theory of operation, and the fundamental science on which they are based. Applications of these instruments to forensic samples will be discussed. The accuracy and precision of measurements as well as error analysis will be introduced. This course is concentrated on electronic and vibrational spectra, although other instrumentation topics will be covered.

Prerequisite(s): Coursework necessary for admission to Master of Science in Forensic Science Program.