



D95 Forensic Microscopy for an Undergraduate Student

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After attending this presentation, attendees will learn how different types of microscopy are taught in an undergraduate classroom. Specific laboratory exercises that focus on four types of microscopy will be discussed with the goal of understanding commonly used microscopes in a forensic laboratory to include stereomicroscopy, compound light microscopy, polarizing light microscopy, and instrumental microscopy.

This presentation will impact the forensic science community by showing specific microscopy exercises being developed and offered to students in undergraduate forensic science programs and courses.

In a growing forensic science program, there is a need to offer courses which specifically teach approaches to individual forensic techniques used repeatedly in most forensic science courses. There are courses specific to forensic chemistry, which may also be broken into illicit drug analysis, explosives, or composition of ink. In forensic biology courses, there are separate courses on genetics, DNA, and statistics. Universities that offer forensic science courses also focus on impression evidence, offering an entire course solely on fingerprint and footwear impressions. Photography and crime scene investigation are usually individual courses as well. One scientific instrument that is common across nearly all forensic courses is the microscope.

Microscopes are used to examine multiple types of evidence from chemistry, biology, impressions, and crime scene. However, microscopy is usually not taught as a stand-alone course even though the use of microscopy is seen over and over again. Microscopy should also be taught as an individual course similar to other forensic courses. This type of course would allow students to focus on proper microscope use and application to the analysis of different types of evidence. This application can then be used for a multitude of forensic sciences.

Each type of microscope can be the course focus and then different types of evidence can be examined using the techniques discussed. Students will be able to understand how each type of microscope is different and offers different abilities to the forensic scientist. All types of evidence can be examined using microscopy; therefore, this course is not limited to the forensic chemist, biologist, etc. The approach taken in this course teaches students how to handle stereomicroscopes, compound light microscopes, polarizing light microscopes, and instrumental microscopes. Each type of microscope will be broken down into components, teaching students how the microscope functions and the advantages and disadvantages to each type of microscope.

Once students have a general knowledge about each microscopy technique, a variety of evidence is used to emphasize how each microscope is utilized in a forensic laboratory. Due to advances in forensic science program curriculum, there has been a need seen for a course that covers just forensic microscopy. Forensic science education should consist of basic forensic science courses; however, more advanced coursework should be included with laboratory components.

During this presentation, discussion will consist of the development, implantation, and modifications made to a forensic microscopy course in a Forensic Science Education Programs Accreditation Commission (FEPAC) accredited forensic science program. This will cover the course curriculum, types of students in the course, and changes made within the course.

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