The purpose of a course on forensic science is to provide law students with an intensive focus on science and the legal process, and to give them in-depth knowledge of the scientific methodologies and the quantification of evidence that have become a regular feature of current-day civil and criminal litigation. Law students will clearly benefit from this course, inasmuch as a thorough understanding of the principles of science (including how scientific evidence is quantified) is essential to assessing the accuracy and reliability of a broad range of forensic science disciplines. The need for law students to become literate in the basic scientific principles underlying the broad range of forensic science disciplines as a necessary component of an effective adversarial system of civil and criminal justice was noted and emphasized in a report on the present state of forensic science recently issued by the National Academy of Sciences:

[L]awyers and judges often have insufficient training and background in scientific methodology, and they often fail to fully comprehend the approaches employed by different forensic science disciplines and the reliability of forensic science evidence that is offered in trial. Such training is essential, because any checklist for the admissibility of scientific or technical testimony is imperfect.


The use of scientific evidence in civil and criminal trials has steadily increased since it was first introduced over 100 years ago, driven in large part by jurors’ ever growing expectations that forensic science provides powerful and persuasive evidence. To meet this demand, forensic science disciplines developed and promoted a wide array of “scientific” disciplines, particularly in the criminal arena, including highly questionable disciplines that involved the comparison of patterns (handwriting, fingerprints, toolmarks, hair, fibers, tire marks, bite marks, footprints, and fingerprints)
by experts who would render the opinion that a match indicated the source of crime scene evidence. Courts routinely admitted this type of scientific evidence without subjecting it to the rigors of science to determine the validity, accuracy, or reliability of the underlying assumptions, methodologies, and ultimate expert opinions. As a consequence, until recently many of the pattern comparison forensic sciences used in criminal prosecutions were presumed valid and were rarely challenged by defense lawyers.

The advent of forensic DNA analysis has shown, however, that many long-standing “scientific” methods for comparing patterns as a means of identifying the source of crime scene evidence have no scientific foundation and are profoundly vulnerable to examiner bias and error. Notwithstanding the lack of a scientific basis for pattern comparison evidence and the grave injustices caused when juries are mislead by erroneous expert “scientific” opinions, the defense bar as a whole has demonstrated that it is generally unprepared to effectively challenge the admission of this type of evidence in criminal trials. Most lawyers have no training or experience in the principles of science or the quantification of evidence and are easily overwhelmed by an expert who renders an opinion cloaked in scientific terminology.

The failure of counsel to render effective assistance of counsel to their clients – particularly indigent defendants – as a result of their lack of sophistication in science and the quantification of evidence is often mirrored in civil cases where attorneys are confronted with the need to present or challenge complex evidence concerning liability or damages that requires an attorney to have competence in the area of research methodology and statistics.

To mount successful challenges to scientific evidence – or to use it persuasively –
lawyers must be able to demonstrate their competence in forensic science to trial judges. Experience teaches that to be persuasive on this core issue, lawyers must possess a high degree of literacy in the principles of science, including the methods for quantifying evidence, and how to subject scientific evidence to the rigors of the scientific method. Without this knowledge, lawyers cannot satisfy their duty to competently represent their clients.

The course in forensic scientific evidence will provide law students with this essential training and education in science to be an effective trial attorney, whether civil or criminal.