Forensic Science in Legal Education

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ABSTRACT

In criminal cases, forensic science reports and expert testimony play an increasingly important role in adjudication. More states now follow a federal reliability standard, following Daubert v. Merrell Dow Pharmaceuticals and Rule 702, which calls upon judges to assess the reliability and validity of such scientific evidence. Little is known about what education law schools provide regarding forensic and scientific evidence or what types of specialized training they receive on scientific methods or evidence. Whether law schools have added forensic science courses to their curricula in recent years was not known. To better understand the answers to those questions, in late 2019 and spring 2020, we conducted searches to identify course offerings in forensic sciences at U.S. law schools and then surveyed their instructors, asking for syllabi and information concerning how the courses are offered, how regularly, and with what coverage. We identified just forty-three courses at law schools and received responses with more detailed information from twenty-two instructors. In this Article, we describe our findings, and situate them in the offerings of law schools regarding evidence, science, and quantitative methods. We suggest that forensic science will necessarily be a specialty subject at law schools that can and should be further taught in continuing education programs, but also that quantitative methods courses in law school may help provide the foundation for such continuing education.

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We thank all the faculty who took the time to respond to our survey questions. We also thank Linda Ingerman, a volunteer with the Innocence Project, who worked on the initial compilation of law school offerings. This work was funded (or partially funded) by the Center for Statistics and Applications in Forensic Evidence (CSAFE) through Cooperative Agreement 70NANB20H019 between NIST and Iowa State University, which includes activities carried out at Duke University.
INTRODUCTION

Forensic reports and expert testimony play an increasingly important role in criminal adjudication. All states and the federal government require judges to screen forensic evidence, as with any expert evidence, before admitting it at a trial. Many states now follow standards based on the U.S. Supreme Court’s ruling in Daubert v. Merrell Dow Pharmaceuticals and its progeny, which call upon judges to assess the reliability and validity of scientific evidence.1 The responsibilities of defense lawyers to effectively present forensic evidence have increasingly been a subject for constitutional litigation and Supreme Court post-conviction rulings.2 However, leading reports, such as the influential 2009 National Academy of Sciences (NAS) Report, have noted that lawyers and judges have not taken an active or

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2. See Paul C. Giannelli & Sarah Antonucci, Forensic Experts and Ineffective Assistance of Counsel, 48 No. 6 CRIM L. BULLETIN 8 (2012); see, e.g., Wiggins v. Smith, 539 U.S. 510, 523 (2003) (“[W]e focus on whether the investigation supporting counsel’s decision not to introduce mitigating evidence of Wiggins’ background was itself reasonable.”); Hinton v. Alabama, 571 U.S. 263 (2014); see also Brandon L. Garrett, Validating the Right to Counsel, 70 WASH. & LEE L. REV. 927, 9544 (2013) (noting the need for research on whether “defense lawyers properly understand expert evidence, or forensic science evidence-and does the presence of that evidence tend to alter defense strategies-and if so, how?”).
effective role in accomplishing their gatekeeping responsibilities to review the reliability of forensic evidence in criminal cases.³

One challenge for efforts to improve judicial use of forensic evidence is the lack of scientific background and education among lawyers generally, and judges in particular. After all, “scientific evidence tests the abilities of judges, lawyers, and jurors, all of whom may lack the scientific expertise to comprehend the evidence and evaluate it in an informed manner.”⁴ The NAS Report noted “judges and lawyers who generally lack the scientific expertise necessary to comprehend and evaluate forensic evidence in an informed manner” is an obstacle to reform.⁵ In its tenth recommendation, the Report noted the need for support for “law school administrators and judicial education organizations in establishing continuing legal education programs [in forensic science] for law students, practitioners, and judges.”⁶ In response, the American Bar Association adopted six resolutions, including one calling for training lawyers in forensic science.⁷

Very little is known about the state of forensic science education in law schools and whether meaningful improvements or changes have resulted since the release of the 2009 NAS Report. While that Report called on funding for research to improve forensic science methods and standards, it did not call for such funding for legal education efforts.⁸

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⁴. See NAS REPORT, supra note 3, at 86.

⁵. Id. at 12.

⁶. Id. at 28.


⁸. See NAS REPORT, supra note 3, at 71-74, 187-188.
years was not known. This survey seeks to answer those questions. In late 2019 and spring 2020, we conducted searches to identify course offerings in forensic sciences at U.S. law schools and then surveyed their instructors, asking for syllabi and information concerning how the courses are offered, how regularly, and with what coverage. Below we describe the problem and prior literature, our results, and their implications for legal education efforts, including asking whether law schools are the right place to focus such efforts, as compared with continuing legal education.

I. FORENSICS IN LEGAL EDUCATION

A. Literature on Forensics in Legal Education

The 2009 NAS Report identified legal education as an important need in the path forward for improving the use of forensic evidence in criminal cases in the United States. Chapter Eight of the Report, dedicated to “Education and Training in Forensic Science,” described a need “to educate the users of forensic science analyses, especially those in the legal community,” and the Report then recommended improved legal education efforts.9

While that Report prominently emphasized the need for improved legal education regarding forensics, law professors and lawyers had also for some time similarly commented on the lack of adequate legal education in forensics.10 As David Faigman has commented: “The

9. See NAS REPORT, supra note 3, at 218.
10. See, e.g., David L. Faigman, Judges as “Amateur Scientists,” 86 BOS. UNIV. L. REV. 1207, 1211 (2006) (“Lawyers, of which judges are merely a subset, generally lack good training in the methods of science. Most lawyers do not speak the language of science. Lawyers and scientists come from different worlds of education and experience. Indeed, the sorting of professionals into highly compartmentalized categories begins as early as elementary school and is largely complete by college.”); Peter J. Neufeld & Neville Colman, When Science Takes the Witness Stand, SCI. AM., 46, 49 (May 1990) (detailing lawyers’ inadequate scientific backgrounds); ANDRE A. MOENSSENS ET AL., SCIENTIFIC EVIDENCE IN CRIMINAL CASES 7 (Found. Press, Inc., 3d ed. 1986) (“[L]awyers as a group evidence an appalling degree of scientific illiteracy, which ill equips them to educate and guide the bench in its decisions on admissibility of evidence proffered through expert witnesses.”); Jessica D. Gabel, Forensiphilia: Is Public Fascination with Forensic Science a Love Affair or Fatal Attraction?, 36 NEW ENG. J. ON CRIM. & CIV. CONFINEMENT 233, 250 (2010) (“[L]awyers offering and opposing such evidence must be equipped to address the realities and the shortcomings of the evidence. Unfortunately, most are
average law student’s attitude toward mathematics is the same as Huckleberry Finn’s,” who said:

I had been to school most all the time, and could spell, and read, and write just a little, and could say the multiplication table up to six times seven is thirty-five, and I don’t reckon I could ever get any further than that if I was to live forever. I don’t take no stock in mathematics, anyway.11

Or as Andrew Taslitz commented, “few law schools provide any serious training in the forensic sciences, and the casebooks are filled with instances of lawyers failing to spot the simplest and most obvious exculpating evidence in forensic reports.”12

These concerns regarding training of lawyers in forensics was not based on any systematic data concerning educations needs or offerings, but that said, there was evidence that lawyers did not adequate engage with forensic science issues. A study of the role that unreliable and invalid forensics played in the cases of DNA exonerations found that lawyers often did not even ask questions regarding the errors in forensic expert testimony.13 Nor did the defense typically retain an expert.14

Commenting on the role that poor lawyering played in these exoneration

11. See Faigman, supra note 10 at 1211 (quoting MARK TWAIN, ADVENTURES OF HUCKLEBERRY FINN 21 (Random House 1996) (1885)).
12. See Andrew E. Taslitz, Convicting the Guilty, Acquitting the Innocent: The ABA Takes a Stand, CRIM. JUST. 18, 30 (Winter 2005).
14. See Brandon L. Garrett & Peter J. Neufeld, Invalid Forensic Science Testimony and Wrongful Convictions, 95 VA. L. REV. 1 (finding, in a study evaluating 232 post-conviction DNA exonerations, that 156 of the exonerees had testimony by forensic analysts called by the prosecution at their trials; in 60% of those cases, the prosecution’s expert provided invalid testimony; and in nineteen cases the defense retained an expert.).
cases, Jim Dwyer, Barry Scheck, and Peter Neufeld, wrote: “A fear of science won’t cut it in an age when many pleas of guilty are predicated on the reports of scientific experts. Every public defender’s office should have at least one lawyer who is not afraid of a test tube.”15 Work has also documented prosecutorial lapses of ethics and outright misconduct concerning the presentation of or concealment of forensic evidence.16 Studies of judicial attitudes and treatment of forensic evidence have documented uneven judicial understanding of scientific principles, such as the concept of error rates and peer review.17

B. Law School Curricula

Traditionally, courses in evidence law have at least covered Daubert and the topic of expert or scientific evidence. Scholars have recommended that forensic science courses be offered at law schools: “all law schools have to educate law students as a part of the core, mandatory curriculum on basics of forensic evidence.” 18 However, as Robert Sanger has observed, traditional evidence textbooks “take much of the space” on that topic by “publishing long excerpts” from leading cases like Daubert.”19 Traditional evidence courses do not substantially cover scientific evidence or forensic evidence, except briefly, as an introduction.20 Sanger reviewed law school curricula and concluded that, “Forensics is not taught at all or is available only as an elective in most law schools. Certainly, some law schools have made efforts to

19. Id.
20. Id. at 234.
include forensics in the curriculum in an unstructured fashion. One law school offers an LL.M. Program in Forensics.\textsuperscript{21} Our study seeks to examine whether that conclusion is correct; as described in the next Part, we do confirm that observation.

\section*{II. Results of the Survey}

We identified a total of forty-three forensic science courses at law schools, not including continuing legal education programs geared towards practicing lawyers, and including courses listed on curricular websites for law schools, but which may not be currently offered or offered every year. We did so by searching online listings of courses for the 192 schools on the 2019 U.S. News & World Report law school rankings list, searching for forensic and science in course titles (except for five schools for which there was no online course catalogue), and by follow-up of information received about new course offerings. The schools ranged widely in geographic region and ranking. That initial search for forensic science courses already supports what commentators had observed: forensic science course offerings at law schools are not common.

Of those forty-three courses, several law school websites indicated that the course was not currently being offered.\textsuperscript{22} Several were not offered to J.D. students; one, at West Virginia School of Law, was part of an LL.M. degree in forensic science, the only such degree offered at a law school in the U.S.\textsuperscript{23} Another was part of a trial institute continuing legal education (CLE), and a third was a course for practicing prosecutors.\textsuperscript{24} Some courses were interdisciplinary and included a

\begin{itemize}
  \item \textsuperscript{21} Id. at 232.
  \item \textsuperscript{22} Indeed, the forensic science course offered in the past at University of Virginia School of Law, by one of the authors, is no longer being offered there, and is now being offered at Duke University School of Law, where the author now teaches.
  \item \textsuperscript{23} See West Virginia University, Forensic Justice Degree, http://catalog.wvu.edu/graduate/law/academic_policies_and_procedures/academic_programs/forensic_justice/ (“Because WVU has long been a leader in the field of forensic sciences and is also home to the highly regarded Department of Forensic and Investigative Sciences, WVU Law is a natural location for the country’s first LL.M. in Forensic Justice.”).
\end{itemize}
mixture of students in science and law, such as a course on expert witnesses at Hofstra University School of Law, which included law and forensic sciences faculty and students. Others called on graduate students in the sciences to serve as expert witnesses in mock-trial demonstrations for the law students. One course, offered each year by one of the authors, as part of CSafe, includes mostly current law students, but also practicing lawyers, in a mock trial CLE in which a mock-fingerprint expert is placed on the stand for a day of testimony.25

We sent surveys to faculty who teach each of these courses by email in December 2019, with follow-up emails sent in January and March 2020. We received responses from twenty-two faculty and syllabi and questionnaire responses regarding twenty-three courses. The responses further described how uneven and exceptional it is for a law school to offer a forensic science course. They were uniformly upper-level seminars, and many were not offered each year. The survey responses also suggested a lack of demand that would support larger or annual offerings. Some reported caps on class sizes and waitlists. Others reported typical class sizes of under twenty students. None were large lecture courses. Most of the courses were semester long seminar-format courses, but a few were summer or short courses.

Several courses were no longer being taught by the time of our survey; of the twenty-two who responded to the survey, four courses were no longer being taught. The most recently added forensic science and law course we identified was a course added in 2019 at the University of Wisconsin Law School. The survey responses also suggest that most courses are taught by teaching and research faculty at law schools. Adjunct faculty taught several courses; however, a course at the University of Richmond is taught by Judge Stephanie Meritt, and courses at both NYU and Columbia Law Schools are taught by Judge Jed S. Rakoff.

The syllabi were also studied to examine the basic coverage of these courses. Almost all covered legal standards for admissibility of expert evidence, such as Daubert and Rule 702. Only two courses discussed any coverage of statistics, which suggests that these courses will not provide future lawyers with a deep background in statistics or

25. See 502 Forensics Litigation, DUKE L., https://web.law.duke.edu/academics/course/502/. The course materials for the forensics litigation course are available upon request from the instructors.
quantitative methods. Most of the courses discussed coverage of the 2009 NAS Report, which itself discusses research gaps in many commonly used forensic disciplines. Few courses used textbooks but rather relied on course packs and materials assembled by faculty.

III. IMPLICATIONS FOR FORENSICS AND LEGAL EDUCATION

The NAS Report detailed how “[b]etter connections must be established and promoted between experts in the forensic science disciplines and law schools, legal scholars, and practitioners.”26 The goal was ambitious:

The fruits of any advances in the forensic science disciplines should be transferred directly to legal scholars and practitioners (including civil litigators, prosecutors, and criminal defense counsel), federal, state, and local legislators, members of the judiciary, and law enforcement officials, so that appropriate adjustments can be made in criminal and civil laws and procedures, model jury instructions, law enforcement practices, litigation strategies, and judicial decisionmaking.27

Further, “Law schools should enhance this connection by offering courses in the forensic science disciplines, by offering credit for forensic science courses taken in other colleges, and by developing joint degree programs.”28 The Report gave specific reasons for focusing on law schools, as opposed to continuing legal education, explaining:

Unfortunately, it might be too late to effectively train most lawyers and judges once they enter their professional fields. Training programs are beneficial in the short term, because they offer responsible jurists a way to learn what they need to know. For the long term, however, the best way to get lawyers and

26. See NAS REPORT, supra note 3, at 27.
27. Id.
28. See NAS REPORT, supra note 3, at 239.
judges up to speed is for law schools to offer better courses in forensic science in their curricula.\textsuperscript{29}

However, Christine Funk and Evan Berman criticize adding forensics to law school education, claiming “It is inefficient to educate lawyers in forensic science as part of the law school curriculum, as suggested by the NAS Report. Many will go their entire career without dealing with a forensic science case, where others deal with forensic science as a matter of course.”\textsuperscript{30} They propose requiring some additional certification or level of competence, along the lines of what states require for qualified capital defense counsel.\textsuperscript{31}

This survey suggests that in the thirteen years that have passed since the NAS Report was published, we have not seen anything like a surge in offerings regarding forensic science. Moreover, the few law school courses that are offered often do not focus on statistics or scientific methods; they are typically introductory or discussion seminar courses.\textsuperscript{32}

If the broader concern is that lawyers have a foundational understanding of the methods and principles underlying a variety of scientific disciplines, it may be more relevant and generally applicable for law schools to offer courses in quantitative methods, scientific methods, and statistics (which many law schools do offer).\textsuperscript{33} Indeed, given the limited quantitative components of nearly all of these forensic science courses, perhaps such quantitative methods courses would provide a stronger foundation for future lawyers. To be sure, many of those courses may focus on finance and accounting, and not the types of issues relevant to assessing evidence or expert evidence.

\textsuperscript{29} Id. at 236.
\textsuperscript{31} Id.
\textsuperscript{32} Michael J. Saks and David L. Faigman, Failed Forensics: How Forensic Science Lost Its Way and How It Might Yet Find It, 4 ANN. REV. L. SOC. SCI. 149, 161 (2008). (“Although law school could be described as a glorified liberal arts education it generally does not include courses in research methods and statistics. Even where such courses are available, they are taken by a small percentage of students.”).
While continuing education programs targeted at criminal lawyers are minimal, these programs already exist for judges. Recommendations have been made to continue to enhance these educational programs.\textsuperscript{34} There have been new training programs geared towards judges developed specifically in response to such recommendations, including those hosted by the American Association for the Advancement of Science (AAAS); ABA Judicial Division Forensic Science Committee; Federal Judicial Center (FJC); The National Courts and Sciences Institute (NCSI); The National Judicial College (NJC).\textsuperscript{35} Training materials have been developed for judges, most prominently the Reference Manual on Scientific Evidence, developed by the Federal Judicial Center and the National Research Council. In Texas, the Texas Forensic Science Commission has co-hosted forensic science conferences “to provide free continuing education training for lawyers, judges and scientists in a wide range of forensic disciplines.”\textsuperscript{36}

One recent proposal would have gone further, with a national vision for forensics education in law. In 2015, the National Commission of Forensic Science, which included a subcommittee on training on science and law,\textsuperscript{37} made a recommendation that a national curriculum for judges be developed. The suggested materials included law on expert evidence, probability and statistics, strengths and limits of forensic evidence, quality assurance in laboratories, and contextual bias.\textsuperscript{38} However, the


\textsuperscript{35} See generally Judge Stephanie Domitrovich & W. Milton Nuzum III, \textit{Teaching Judges to Be Gatekeepers of the Admissibility of Science the Role of the ABA Judicial Division Forensic Science Committee}, ABA SciTECH LAW. 12, 14 (Summer 2017). For a general discussion regarding science, technology, and law, see NAT’L CLEARINGHOUSE FOR SCI., TECH. & L., \textit{About Us}, http://www.ncstl.org/about/Accomplishments%20Archive (last visited June 28, 2020).


Department of Justice did not follow up on that recommendation, as the Commission itself expired in April 2017, having made only the recommendation that a legal education curriculum should be developed (but none was developed). 39

CONCLUSION

U.S. Supreme Court Justice Stephen Breyer has written that: “In this age of science, we must build legal foundations that are sound in science as well as in law. Scientists have offered their help. We in the legal community should accept that offer.” 40 The results of this survey suggest that forensic science is still not commonly taught in law schools, although the courses that are taught are regularly offered. The courses offered do not have heavily quantitative components, suggesting that in addition to specialty courses in forensics, more general courses in quantitative methods may provide more background in statistical concepts for future lawyers. More fundamentally, the results suggest that far more should be done to ensure scientific literacy in the legal profession, beginning in law school, but also continuing throughout the professional careers of practicing lawyers.

40. See Stephen Breyer, Science in the Courtroom, 16 ISSUES IN SCI. & TECH. 52, 56 (Summer 2000).