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To Certify or Not to Certify? A Proposed Graduate Course and Universal Certification for Forensic Expert Witnesses

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Abstract

During a court proceeding, attorneys will oftentimes bring up evidence related to their case. Since attorneys are usually not an expert in the field of evidence that they are discussing, they will bring in an expert witness. Expert witnesses are asked ". . . to testify in court when complex or specialized knowledge, beyond that of the lay person, is needed to interpret the evidence" (Wilcox & NicDaeid, 2018, p. 100). Forensic expert witnesses and their testimony, especially, are becoming increasingly important regarding accuracy and delivery. It's been found that juries tend to rely heavily on forensic evidence when reaching their verdict and that they value forensic testimony such as DNA and trace evidence over non-forensic evidence such as eyewitness statements (Eastwood & Caldwell, 2015). With forensic testimonies having a potentially large impact on the outcome of a case, one would think that there would be a certification required for these experts to give testimonies, but there is not. If a baseline certification were to be made for expert witnesses, then it would ensure that only the most credible and knowledgeable individuals would be able to make these life-altering testimonies. It has been found that many aspects of an expert's testimony can change the juror's views of the evidence presented, from the expert's experience to how they verbalize their testimony (Eastwood & Caldwell, 2015). I propose that there should be a mandated certification for expert witnesses to testify in court, and I subsequently propose a graduate level class for Merrimack College Students which will aid them in completing this certification.

Current Practice of Forensic Expert Witnesses

The practice of being an expert witness is not generally a career in itself. Expert witnesses come in different forms, but forensic expert witnesses use their special knowledge gained through their practice to testify in court. Expert witnesses usually have one field of expertise, much like how doctors have different fields of expertise. So, what exactly is forensic science and what are the different disciplines? According to the Department of Justice (DOJ), "forensic scientists examine and analyze evidence from crime scenes and elsewhere to develop objective findings that can assist in the investigation and prosecution of perpetrators of crime or absolve an innocent person from suspicion" (DOJ, 2021, par. 1). Essentially, forensic science is the application of science to the examination of crime. Some of the common forensic disciplines include: ". . . forensic molecular biology (DNA), forensic chemistry, trace evidence examination (hairs and fibers, paints and polymers, glass, soil, etc.), latent fingerprint examination, firearms and toolmarks examination, handwriting analysis, fire and explosives examinations, forensic toxicology, and digital evidence" (DOJ, 2021, par. 2). If, for example, there was a forgery case, where a contractor forged a false memo on their client's check, the prosecution would most likely bring in a handwriting analysis expert to give their opinion. But, if there was a case regarding car paint, the prosecution would not bring in a digital evidence analyst since they are not an expert in the field of forensic chemistry or trace evidence examination. The different disciplines can be confusing, but it is important to realize that forensic experts generally choose and specialize in one field and it is usually in that field that they are called to testify for.

Unlike the depiction of many modern TV shows, crimes are not solved within an hour and it takes many different departments working together to come to a conclusion. For example, if a call is received about a suspected murder framed to look like a suicide, the field investigators will collect as much evidence as they can, and then distribute it to the respective departments.

Pictures of blood splatter will be given to a blood splatter analyst to determine the direction that the blood came from and the approximate speed that it was traveling. A molecular biologist will also be given a sample of the blood to determine the blood type of the individual which can then be compared to the body found at the scene. A firearms examiner will examine the gun for its serial number, and then determine if the bullets found at the crime scene were fired by the gun in question. The firearm examiner may also be tasked with ballistic analysis which would help determine the direction that the bullets were traveling in, and approximately where the shooter was standing in relation to the victim when they shot the gun. Latent fingerprint examiners would then be tasked with comparing the fingerprints at the crime scene to those of the victim and the suspect. If there was a suicide note left at the scene, a handwriting expert would also be asked to compare the note with other samples provided to either validate or invalidate the authenticity of the note. All of these expert reports will then come together to determine what happened at a crime scene, and subsequently these specialists may be called into court to relate these findings to the jury (Belanger, 2020).

Call for Universal Certification

With the ever-increasing popularity of crime shows such as *CSI, Criminal Minds,* and *NCIS*, juries have placed a higher importance on forensic evidence. While attorneys originally hoped that these shows would portray their witnesses as heroic, the narrative instead pivoted towards ". . . raising jurors' expectations for forensic science and causing them to acquit if forensic science was absent" (Cole, 2013, p. 131). There have been many studies with various findings regarding the CSI effect, but research has generally shown that the CSI effect created a pro-defense bias within the jury and it can cause the jury to acquit the defense if there is either no forensic evidence given, or if the evidence given is not perceived as sufficient. This is a grand

issue in 21st-Century forensic science, and there are potential solutions that are all centered around training the expert on how to teach the jury and clear-up any misconceptions surrounding different practices (Alldredge, 2015, p. 114-115). Evidence and a jury's perception of its importance and validity are of the utmost importance when it comes to expert testimony. In fact, when asking jurors to rate evidence regarding importance, it was found that they rated forensic evidence (DNA, hair, fiber evidence, etc.) as stronger than evidence such as eyewitness or victim statements (Eastwood & Caldwell, 2015, p. 1523). Since jurors are relying upon forensic evidence and the testimonies given by their respective experts to make verdicts, there should be a stricter policy regarding who can testify. There is currently no national mandate for certification and many scholars and lay people strongly believe that there should be (Melbourn et al., 2019).

Currently, the practice for certifying an expert witness in court comes in the form of an attorney (either prosecution or defense) initially examining the expert's qualifications outside of court, and then, if the expert suits the attorney's needs, they will subpoena the expert. Then, to allow the expert into court the attorney will present the individual's ". . . education, training, and experience as qualifications for [the expert's] right to speak authoritatively on the evidence [they] examined" (Houck et al., 2020, p. 11-12). If this qualification is successful, then the expert is moved towards direct and cross examination. Direct examination ". . . is the questioning of a witness by the attorney who called him or her in a court of law" (Houck et al., 2018, p. 79). These are open-ended questions that are aimed at allowing the expert to expand on their testimony and findings. Cross-examination is "The phase of the dispute resolution process in which opposing counsel asks questions of witnesses in order to test the truth, accuracy, or thoroughness of direct testimony" (Houck et al., 2020, p. 217). During cross-examination, an expert will be asked questions that elicit a 'yes' or 'no' response. While this qualification process

is important to establish an expert's credibility, it can also negatively impact the jury's views on their testimony.

It has been found that credentials can influence a jurors' opinion in the accuracy of an expert's testimony. As Koehler et al. (2019) discovered in their experiment of eligible U.S. jurors, the jurors believed that ". . . an examiner who has a great deal of experience is also one who had great expertise and competence" (p. 409). Wilcox & NicDaeid (2018) also found that most of the jurors in their experiment ranked the expert's experience as more important to them than their university education. This is especially problematic when two experts are testifying against each other, the jury will tend to move towards believing the expert with the most experience, rather than basing their opinions off the facts presented. If the accuracy of a testimony is contingent upon the jurors' perceptions of the expert's background/history, then we need to move to mitigate this human factor. It is not fair to the expert or both parties of the trial if an expert's opinion is being accepted or discounted due to a perception of experience. This, in turn, is neglecting newer scientists and those that may not have a lengthy history in their field. If a universal, mandatory certification were to be implemented then the criminal justice system can move towards eliminating this bias, especially when human livelihood is in question. Additionally, by requiring a certification and periodic training, experts can be given the tools necessary to convey their findings and knowledge to the jury in a concise manner.

Certification at a Glance

As previously discussed, there are many different forensic science disciplines therefore one exam cannot encompass every specialty. Each forensic science discipline would have a specific exam that would be tailored to the baseline knowledge that those experts should possess. Candidates would be required to take an on-time exam much like how a lawyer must take a BAR

exam, or like how a medical doctoral candidate must pass their Boards exam. Upon completion, the individual will be certified in their field and as an expert witness, signifying that they obtain adequate knowledge to be considered for giving an expert opinion in court. Following certification, members would be required to be active in their field and in the association including attending training or conventions. The goal of active participation will be to promote new/recent practices, ensure that the members are up to date on the latest technology and practices, and to aid in the expansion of knowledge in the field of forensics.

Benefits of Certification

Many jobs in the U.S. require certifications such as teachers, lawyers, doctors, and even police officers, so why do we stop at forensics? If this mandatory certification were to be implemented then we would be able to eliminate qualification bias, ensure that courts are receiving the most qualified candidates, help attorney's select experts, create a national registry of trusted experts, and require that experts are kept up to date with the latest courtroom practices. As many experiments such as Wilcox & NicDaeid (2018) found, questioning the qualifications of an expert (while important) can have negative implications, especially when it makes the jury question if they have the proper experience or not. These negative implications surrounding questioning are consistent with juries doubting an expert's opinion based upon their time in the field, rather than their education and knowledge. When presented with identical testimony by an individual with little time in the field, compared to someone with years of experience, jurors tended to believe the expert with more field experience (Koehler et al., 2016, p. 410). By implementing this certification, it can eliminate the need to question a witnesses' background which can mitigate the harm of jury bias. Even though Melbourn et al. (2019) found that a majority (52%) of their surveyed forensic scientists feared a national exam due to failure, it could

also be said that this certification would promote only the most qualified individuals as experts (p. 166).

Additionally, this certification would also aid attorneys when selecting experts. Wechsler et al. (2015) found in their study on how attorney's select experts that they usually ". . . expend significant resources, including time and energy, towards identifying the right expert" (Wechsler et al., 2015, p. 60). This certification would also serve to streamline the process of selecting experts for attorneys by giving them a national registry of qualified individuals which would eliminate their need for having to research the background and qualification of each expert. This streamlining of certification would allow them to spend more time researching their case. Lastly, by creating a national certification, a subsequent board and association would be formed and would allow for mandatory yearly training which would ensure that forensic experts are kept up to date with new practices and training on how to best present themselves in a courtroom. Even though new practices in the field of forensic science must be peer reviewed and empirically analyzed for acceptance, there are still gradual evolutions in the field as it is a relatively recent creation. New information is constantly being learned about forensics from certain practices not being accepted (bite mark analysis), to recent discoveries such as familial DNA. These practices have become paramount to recent cases such as missing persons or unidentified body cases. By holding national conventions, experts would be ensured that they are being exposed to the most recent and reliable practices, in addition to receiving first-hand training in how to execute these practices. Overall, this requirement would have benefits that reach far beyond the expert themselves.

In recent years there have been many examples of misused forensics which have subsequently led to wrongful convictions. As Melbourn et al. (2019) state in their call for a universal certification, in 2014 ". . . 27% of wrongful convictions, false or misleading testimony

by forensic experts were identified" (Melbourn et al., 2019, p.161). This is a staggering amount considering the amount of trust that lay people place on forensics. It is, however, interesting to note that these false or misleading testimonies can also be the result of practice changes and discoveries. As with any field, as forensics evolves new practices are discovered and old ones are discredited, therefore this statistic may also be a result of changing practices (Innocence Project, 2021, par. 1-2). This echoes the point that expert witnesses should be required to attend workshops so that they are presenting the most up-to-date information. In Joycelyn Pollock's book *Ethical Dilemmas and Decisions in Criminal Justice* (2022), Pollock describes many instances of misconduct surrounding prosecutors overstating their witnesses' qualifications, to eliminating defense-favorable information from their report, and even experts who make baseless claims. While these instances are surrounded by pressure from the prosecution, it's important to recognize faults in the forensic community and move towards eliminating it.

Even though we might not be able to eliminate all instances of bad forensic witness practices, a universal certification would have eliminated Louise Robbins who testified that the boot mark presented matched the defendant while no other forensic examiner agreed, or Joyce Gilchrist who overstated her testing accuracy and lied during her testimony (Raeder, 2007, p. 1422). In addition to setting a benchmark minimum requirement for becoming an expert, a universal certification would have worked towards eliminating these experts or require them to refresh their memory towards ethics and their understood honor code. If any certified expert were to go against the association's honor code, or were found to be willingly ignorant, then they would risk a loss of licensure which would in turn hurt them as it would appear on their record. This can especially hurt an individual if certification were to be mandated, much like when a police officer finds their name on the *Brady* list, this would in turn discredit them as an expert for the remainder of their career.

My ultimate call for action comes in the form of a universal, mandatory, forensic expert witness certification. Just like medical doctors, each specialty would have a different set of requirements to meet, but the initial exam would consist of ethics, different presentation tactics, admissible evidence/tests, and general questions surrounding their role in a courtroom, just to name a few categories. This certification can positively impact the practice of forensics by ensuring that courts only receive the most qualified individuals, as well as professionals would have to participate in annual training, in addition to staying current on new policies and scientific advancements (Melbourn et al., 2019). By eliminating the need to examine a witnesses' background in front of a jury, the jury would be more apt to judge the evidence presented rather than judging the person who is presenting it and the potential error that their experience holds. Additionally, like most professions, ". . . certification presents a commitment to excellence that is tangible to the trier of fact, rather than simply being implied in good faith" (Melbourne et al., 2019, 167). Additionally, this move towards certification would ". . . make it more difficult for expert witnesses to testify outside of their field of expertise since they would not be certified in that discipline" (Melbourn et al., 2019, p. 167). While there is no current stat on the number of witnesses that testify outside of their respective field of expertise, it is nevertheless a good preventative measure to have. This certification would then mitigate prosecutors' use of unqualified individuals or using experts outside of their field of study (Pollock, 2022, p. 238).

Challenges and Oppositions

Though universal certification may seem like a good idea in theory, it is important to recognize some of the challenges and oppositions that may come of it. Main oppositions to universal certification surround the ideas of studying, costs, and a move towards eliminating standardized tests. In special regards to individuals already practicing in the field of forensics,

they may not have time outside of their regular job and life to study for this certification. Additionally, their employers might not be willing to give them time-off to study, especially with pressing time restraints and back-logs. While many in the industry are hopeful that falsifying data does not happen often, there are scientists such as Annie Dookhan, who famously falsified thousands of drug tests, that slip through the cracks (Kean, 2021). Even though Dookhan is a special case, if a certification and subsequent training is required, this will cause scientists to spend more time away from their lab which gives the potential of them rushing through their work to catch up. Great concern can especially come from those that are far-removed from school or those that might have not received a degree in forensic science, this certification examination may be difficult for them.

Funding is also another area of concern, who is paying for the examination and travel expenses? At the moment those expenses would land on the individual as laboratories are notoriously underfunded. In 2017, the National Institute for Justice estimated that ". . . state and local laboratories. . . faced a budget shortfall of $640 million. . ." (National Institute of Justice, 2020, par. 10). Aside from their initial certification, scientists might also be required to travel annually to conferences or different training activities to keep their certification status active and current. This cost would also, unfortunately, fall on the individual unless more federal funding can become available (Melbourn et al., 2019). Another way to overcome funding would be to start a grant process or an endowment for financial assistance to help the individuals that may not be able to afford the certification or its subsequent conventions. Financial difficulties should not be a limiting factor for individuals that want to obtain certification. Lastly, as there is recent traction in the movement to end standardized testing such as SATs, ACTs, and the GRE. This argument, however, should be exempt from the topic of forensic certification. There should be no world where a doctor practices without a license, therefore a forensic scientist who is directly

testifying for another individual's life should be required to have a certification saying that they are knowledgeable and trustworthy. By requiring a certification, juries would be ensured that the witnesses giving them information have received up-to-date training, and that the potential for an expert giving their testimony purely for monetary gain would be diminished.

Two last areas of contention that will be discussed include the attorneys having a difficult time discrediting expert, as well as what happens when there are two opposing testimonies. As Melbourn et al. (2019), states, ". . . it would become exceedingly difficult for an opposing side, whether it be the defense or prosecutor, to discredit the credentials and competency of expert witnesses that are certified," (Melbourn et al., 2019, p. 167). While this can be seen as a good thing for expert witnesses since their qualifications and life's work would not be directly attacked/discredited, attorneys often rely on attempting to cast doubt upon the testimony and information given, therefore it can make their job harder. Another important issue is, what would happen if both the defense and prosecution have witnesses that give two different testimonies for the same data presented, how would the court move towards proving or disproving them? This is an area that needs to be examined as there are many different scenarios, but my belief is that only in that instance would history (time in the field, other certifications, and schooling) be factored in. While there is much work to be done with analyzing the logistics of a universal certification for forensic expert witnesses, I stand in support of this move for the betterment of not only the forensic science community, but for the United States' criminal justice system as a whole.

As previously stated, there is no national certification for forensic science expert witnesses and witnesses are judged in court based purely upon their background, publications, and (to a lesser extent) schooling. Despite the aforementioned challenges to this concept, it is still needed to ensure that everyone in a criminal trial is receiving a fair and impartial trial. By requiring certifications and recurrent training, the forensic science community would be ensuring

that expert witnesses are given the proper tools that they need to make a successful and comprehensive testimony. Outside of their verbal testimony, there are many factors that juries take into consideration when judging the validity of an expert and this certification can be a way to implement national standards that are not already in place. For example, there is not a set of standards for how an expert witness should present themselves in court. It's been found that influential factors of a testimony include the witnesses' attire, their presence or absence of jargon, their use of demonstrative aids, and even how they speak to the jury (preferring a narrative, educational style) (Wilcox & NicDaeid, 2018). There needs to be more training in these areas seeing how important these testimonies are for deciding the outcome of most cases. This type of training should not only come from the certification process, but it should also come from the individual's formal education. Higher learning institutes should be implementing classes aimed at preparing future forensic professionals for these expert witness skills and certifications.

Proposed Graduate Class

Along with a universal certification, I am also proposing a graduate level class for Merrimack College's Criminology and Criminal Justice Master's program. This class would discuss the different aspects of being a successful forensic expert witness. There is currently not a class in the master's curriculum that solely focuses on the practice of being an expert witness and I believe that having the skills to be a successful expert witness should be a requirement for anyone that wants to go into the field of forensic science. This class would cover topics such as: What is the responsibility of an expert witness, how one should present themselves, how jurors perceive evidence, and the ethics associated with being a forensic expert witness. The goal of this class will be to create strong and knowledgeable students who are ready to take the universal

expert witness examination. By implementing this class, Merrimack College would be helping to breed the next generation of expert witnesses whose testimony can be held in high regard.

Course Name: *Expert Witnesses in Court*- 4 Credit Master's

Pre-requisites: CRM 6002 Criminal Law and Procedure (or undergraduate equivalent)

> **Justification for pre-requisite**: When discussing court cases and what an expert witness can and cannot do, it is important to have a basic understanding of the laws associated with criminal evidence. Without a previous knowledge of criminal laws and criminal procedures, students might have a hard time grasping these concepts when it comes to questioning an expert's evidence.

Required Textbook: *Successful Expert Testimony* (2018), by Max M. Houck, *et al.*

Course Description

This course is designed to provide students the opportunity to explore and understand the role of expert witnesses in court with a particular interest in forensic evidence. Students will be tasked with understanding how a courtroom proceeds, how/why an expert is called, the different forms of questioning, and how to be a successful witness. This course will also explore the different types (specialties) of expert witnesses, as well as how to be an expert witness for cases that were not processed by the individual giving a court statement. Courtroom expert witnesses can be pivotal for a case; therefore, it is important that Criminal Justice students understand how to properly present themselves in court. At the end of the semester students will be able to use expert witness related jargon and successfully be able to communicate complex concepts to jurors, as well as understand the different parts of a trial, the different forms of questioning that they will undergo, and the dos and don'ts for expert witnesses. It is also the intended outcome of this course that students will be able to achieve expert witness certification upon completion.

Course Learning Objectives

Learning Goals	Assessment Strategies
1. Students will be able to correctly use, define, and understand important terms and jargon in the criminal justice system such as those that are commonly used in courtrooms with expert witnesses.	Through weekly vocab assignments, class discussion boards, and their final presentation, students will be given ample opportunity to develop and use their vocabulary surrounding expert witnesses in court.
2. Students will be able to state the different phases in a trial surrounding an expert testimony, as well as give example questions for each stage.	This knowledge will be assessed by their final presentation. During this final presentation students will display their knowledge of what occurs in each of the three phases of an expert testimony and will display understanding by their questioning.
3. Students will understand the history of forensic expert witnesses in court and will be able to discuss important past rulings.	Through their mid-term paper, students will demonstrate an understanding of the history of forensic expert witnesses in court, as well as demonstrating an understanding of how those cases have affected the current state of forensic expert witness' evidence.
4. Students will understand and be able to state which evidence is admissible or inadmissible in court and why based upon the *Frye* and *Daubert* methods.	Student's understanding will be assessed through reading quizzes, class discussion, and their final project. Through these assessments (both formal and informal) students will be able to express their knowledge on these subject matters.

Credit Justification

During a 15-week (14 meetings) semester, students will meet once a week for three (3) hours to total 42 contact hours for the semester. In addition to their in-class learning, students will be expected to complete weekly reading assignments that will be supplemented by in-class reading quizzes, in addition to completing weekly vocabulary assignments, five (5) discussion boards, and a crime scene analysis exercise. Students will also complete a mid-term paper analyzing a

pivotal court case in forensic expert witness history, as well as complete a final project demonstrating their skills and knowledge gained during the semester.

Assignment	**Time per week X Total weeks**	**Total time**
Weekly Reading	Approx. 30 pgs. Per week	3 Hours
Weekly Vocab Assignments	1 hour X 11 Weeks	11 Hours
Discussion Boards	2 hours X 5 Weeks	10 Hours
Crime Scene Analysis	3 hours X 3 Weeks	9 Hours
Mid-Term paper	2 hours X 5 Weeks	10 hours
Final Project	2 hours X 7 Weeks	14 hours
Attendance and Participation	3 hours X 14 Weeks	42 hours
Total Time		138 Hours

Students are expected to attend and participate in every class to facilitate their learning and understanding of the topics discussed. Students are also expected to arrive to class having completed their required readings and assignments. Since there is a lot of material to go through in a little amount of time, it is paramount that students adhere to the schedule outlined and do not fall behind.

This is a graduate level course aimed at providing graduate students the opportunity to explore and understand what an expert witness does in court, as well as how to be a successful expert. Throughout the semester, students will demonstrate their understanding of expert witnesses, how they are questioned, their codes of conduct, and how to answer questions as an expert, shown

through their assignments. Students will not only be able to identify the different parts of questioning an expert witness during trial, but they will also be able to properly use jargon that they will be gained through in-class discussions and their final project.

Assessments

Weekly Reading Quizzes- 10%
Weekly Vocab Assignments- 10%
Discussion Boards- 10%
Crime Scene Analysis- 15%
Mid-term paper- 15%
Final Project- 30% (15% for each part)
Attendance and Participation- 10%

Grading Scale

A 100-93

A- 92-90

B+ 89-87

B 86-83

B- 82-80

C+ 79-77

C 76-73

C- 72-70

Assignments

"Get to know you" Quiz (ungraded)

This is an ungraded quiz where students will be asked about basic information such as their name, nickname(s), pronouns, career interests, how they learn best, fun fact(s), and if there were any other information that they would like the instructor to know about themselves (such as interesting facts, interests, or medical issues that may not be documented by the school). The

purpose of this quiz is for the instructor to get to know the students on a more personal basis, to understand their background of forensics, and to avoid the ever-awkward icebreakers.

Reading Quizzes

These timed quizzes will be given at the beginning of each class and will consist of 10 questions based upon the assigned readings/videos. Questions will vary from vocabulary, to review questions (found at the end of each chapter), to basic procedural questions. These questions will be in the form of matching, multiple-choice, fill-in-the-blank, and true/false. These questions should be deemed as "easy" to the students that did the assigned reading, so a time limit of 20 minutes (2 minutes each question) will be placed on the quizzes. The goal of this assessment will be to check for student's understanding of the material (showing areas that might need more attention in-class), and to validate that they are completing their assignments.

Vocabulary assignments

Students will be assigned five key terms per chapter that they must define using their own words. **Definitions directly from the textbook will not be acceptable.** Students will also be asked to use these vocabulary words in a sentence or a made-up scenario to ensure that they have a proper understanding of the word/concept. The goal of this assignment will be to have the students define important terms in their own words so that they can retain them easier and make it easier for them to use later. This assignment is aimed to develop their vocabulary surrounding expert witness jargon.

Discussion Board

Discussion boards will be focused on important topics or current events and they are based around opinions. The purpose of these discussion boards will be for students to take a stance, and to then discuss it healthily with their peers. There is one initial post required, and then two response posts, one of which must be to the instructor. Students will be encouraged to take an opposite ("devil's advocate") stance during their replies. The goal of these discussions is to promote conversation and debate as well as challenging students to verbalize their opinions and stances.

Mid-Term Paper

In place of a formal exam, students will write a 3–5-page paper outlining a pivotal court case for the field of forensic expert witnesses. Court cases can include, but are not limited to:

- O.J. Simpson and how it changed evidence preservation
- Frye and how it led to the Frye method
- Daubert and how it led to the Daubert method
- 2017 General Motors lawsuit for their ignition switches and how that will likely cause a higher necessity for "hard" evidence rather than theoretical evidence.

In their papers, students will summarize the court case and findings, as well as how this case changed future cases. Students will also answer questions such as: What did this mean for forensics afterwards? What did experts now have to prove/disprove? How might you change this ruling, rule, procedure? And what (if any) are the challenges to these rulings?

The purpose of this assignment is to have students explore the rules of forensic evidence/witnesses in court, and to give them a background understanding of what is and is not permissible in court.

Crime Scene Analysis (Week 12-14)

Students will be given a picture of a crime scene with specific instructions and measurements. Their goal will be to analyze the picture, calculate, and prepare to give their expert opinion as to what happened. Students will also be given a non-exhaustive list of questions that they might be asked. After analyzing the crime scene, students will be asked to create a report, and then testify in class while instructor and classmates ask questions. This will test their ability to answer questions pertaining to an actual crime scene, as well as prepare them for their final assessment.

Final

As their final assessment, students will pair up into groups of two and take turns acting out a mock trial testimony as attorney and expert. This activity will follow the three phases of a testimony outlined in *Successful Expert Testimony*, Pages 73-75. Students will be given a made-up scenario and they will be tasked with researching both roles, and then submitting a video of their successfully completed mock testimony for their final grade. To get full credit, students must dress appropriately, use proper body language, ask properly worded questions for the phase (direct vs. cross-examination), have correctly structured replies, and show clear knowledge of subject matter.

Proposed Schedule

Class	Topics	Assignments (Due at following class)
Week 1	**Introductions & Syllabus** **Chapter 1 quick overview** -History of Experts in Trials -Discovery and Deposition - Expert's Role at Trial **Ronald Opus Exercise** https://www.youtube.com/watch?v=weZbhbAwCns **Video:** https://www.youtube.com/watch?v=TUx1EsnKcVw	• "Get to know you" quiz • Read Chapters 2 & 3 • Vocab Assignment #1
Week 2	**Reading Quiz #1** **Chapter 2** -What is Science? -Protocols and Publishing -Admissibility **Chapter 3** -Attorney's -U.S. Court System -Judges - Juries -Experts -Scientists **Assign Mid-Term Paper**	• Read Chapter 4 • Vocab Assignment #2 • Start thinking of mid-term topic
Week 3	**Reading Quiz #2** **Chapter 4** -Discovery -Components -Expert's role -Criminal Cases	• Read Chapter 5 Read: • https://www.mdcourts.gov/data/opinions/coa/2020/47a19.pdf • Vocab Assignment #3 • Discussion Board #1 ○ Initial Post and 2 replies

	-Civil Cases -Preparation -Federal Rules of Evidence -Witness vs. Expert testimony - Rule 702 & 703 **In-Class example of Deposition** **Video:** https://www.youtube.com/watch?v=EytZ_EMfyLs https://www.youtube.com/watch?v=Wl92bHtrOvA	
Week 4	**Reading Quiz #3** **Chapter 5** -Written Reports -Communicating with Attorneys -What to do without Attorney communication -self presentation -Phases of testimony at trial **Expert witness guest speaker** **-OR-** **Report Writing Workshop**	• Read Chapter 6 & 7 • Vocab Assignment #4
Week 5	**Reading Quiz #4** **Chapter 6** -Direct Examination of Experts -Redirect Examination -Instructional Materials -Creating Instructional Materials -Presenting Complex Data **Chapter 7** - Visually Displaying Quantitative Information -Graphs, Graphics, and Comparisons in Court -Demonstrations **Video:**	• Read Chapter 8 • Vocab Assignment #5

	https://www.youtube.com/watch?v=AZ1cyFy7hJQ	
Week 6	**Reading Quiz #5** **Chapter 8** -Cross-Examination -Attorney's Goals -Cross-Examination Techniques -Attacking the Expert's Expertise, Qualifications, and Conclusions -Using Hypotheticals -Testing the Entire Field -Reducing Vulnerability to cross-examinations -What happens after cross-examination	• **Mid-Term Due Friday night before break** • Read Chapter 9 pages 125-134 • Vocab Assignment #6 • Discussion Board #2 ○ One initial and two replies
Week 7	**Mid-semester break**	
Week 8	**Reading Quiz #6** **Chapter 9: Ethics Part 1** - What is ethics vs. morals? -Unethical Conduct -Examples of Misconduct -Scientist and Attorney -Interprofessional Relationships -American Academy of Forensic Sciences Code of Conduct **Video:** **https://www.youtube.com/watch?v=IOiYoP5bJ8M** **Class Discussion**	• Read Chapter 9 pages 134Vocab Assignment #7 • Discussion Board #3 ○ One initial and two replies
Week 9	**Introduce and Assign Final** **Reading Quiz #7** **Chapter 9: Ethics Part 2** -How to Avoid Abuse	• Find partner for Final • Vocab Assignment #8 • Create 2 questions for the guest speaker

	-Primary Ethical Issues -False and/or Altered Data -False Testimony -Recanting Positions -Conflict of Interest -Abuses -By Experts & Attorneys -Your Rights as a Witness -Countering the Claim of Junk Science	
Week 10	**Reading Quiz #8** **Attorney guest speaker** -Discuss: -How they choose expert witnesses -How to prepare questions for expert witnesses -How a typical examination is performed -What they question and why -Student Questions ***This is aimed to help students prepare for their final***	Read: ● https://pvteyes.com/all-about- the-expert-witness-part-1-anintroduction-to-expert-witnesses/ ● https://pvteyes.com/all-about- the-expert-witness-part-2-howto-become-an-expert-witness/ ● https://pvteyes.com/all-about- the-expert-witness-part-3different-types-of-expertwitnesses/ ● Vocab Assignment #9 ● Discussion Board #4 ○ One initial and two replies
Week 11	**Reading Quiz #9** **Types of Expert Witnesses** -Medical -Forensic -Accounting & Security -Vocational *Allow students to explore field and discuss which fields interest them*	Watch: ● https://www.youtube.com/watch?v=0jltioeaEyY ● https://www.youtube.com/watch?v=_gZ7CKKP3MY ● https://www.youtube.com/watch?v=h3-Pj-zbEq8 ● Vocab assignment #10
Week 12	**Reading Quiz #10** **Crash-Course in Forensic Analysis** -Glass Fracture Patterns -Blood Splatter -Fingerprint analysis -Presumptive vs. Confirmatory tests	● Vocab Assignment #11 ● Analyze part 1 of crime scene

Week 13	**Reading Quiz #11** **Crash-Course in Forensic Analysis Continued** - Arson -Ballistics -What different lab machines are used for, what they tell us, and how to interpret their findings.	● Discussion Board #5 ● Analyze part 2 of the crime scene given and prepare to give an expert testimony.
Week 14	**Crime Scene Analysis Assessment**	● Work on Final Assignment
Week 15	**Look at Certification Exam Sample Questions** **Final Questions** **Conclusion of class**	● **Final Due at time of scheduled exam time block**

Conclusion

In recent years, forensic expert witnesses have been shown to have an increasing importance in the courtroom. It is also becoming apparent with recent studies that there might be a need for regulating who can become a witness, in addition to giving existing witnesses current studies surrounding which courtroom practices they should be using. Just as a lawyer needs to pass their respective BAR exam, forensic scientists should be required to pass an initial certification exam and maintain this certification throughout their career stating that they have met the minimum requirements needed to be an expert witness. This training would entail current analytical practices, new discoveries in the field of forensics, new psychological tips on how to present oneself to a jury, and general practices in the field of expert witnesses. The goal of this

training is not to overwrite the knowledge that these experts have from their previous formal training, but rather to advance their presence in the courtroom and to ensure that both parties in a criminal case are receiving a fair trial. In addition to this movement, I have further proposed a course that would outline the world of forensic expert witnesses, and one that would provide students with the tools necessary to obtain their certification. Forensic witnesses are an essential part of the courtroom and are most of the time the deciding factor in a case, so if we are trusting these experts for information on whether to convict someone, then we should ensure that the defendant's life outcomes are not swayed by under-qualified people.

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