

Seminar on Scientific Evidence  
Spring 2025  
Mr. Sanders

The purpose of this seminar is to offer an overview of topics in scientific evidence with a slight focus on mass and toxic torts. The primary impetus for the seminar is the decision of the United States Supreme Court in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 113 S.Ct. 2786 (1993). In that case the Court determined that the rule in *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923) that established the “general acceptance” test of the admissibility of scientific evidence did not survive the adoption of the Federal Rules of Evidence in 1975. The *Daubert* court then sketched out the factors trial courts might consider in determining admissibility. In the opinion of many, the *Daubert* case has opened a new period in the relationship between science and law. The district court judges have been invited to take a much more active role in determining admissibility, an invitation that a number of courts have already accepted. The *Daubert* opinion also has caused people to reconsider how expert testimony should be presented to courts. Although *Daubert* first emerged and took root in mass tort cases (*Daubert* concerns the drug Bendectin), its reach has steadily expanded into nearly every area of expert witnessing. The seminar’s primary focus today is to provide an overview of three related topics: a) the law governing the admissibility of expert scientific testimony, b) an introduction to scientific methods, statistics, and the science supporting (or failing to support) expert testimony in several areas and c) the interaction between scientific opinion and our adversarial system.

I have assembled a set of readings for the seminar that will be available as a PDF on-line. I hope the materials will be ready by the beginning of the semester. I will also make hard copies of the materials available for all who want a copy. Will be able to pick them up from my secretary in the third-floor faculty suites.

Each person in the seminar has two obligations: a) to read the materials and participate in class, and b) to write a term paper. As to the first obligation, there is lots of reading in the syllabus. I will focus on some of the articles in class which I will identify before each class. I expect everyone to participate in the discussion. The grade in the course will be based partly on class participation. Grades will be based primarily on the second requirement, the term paper. You should begin working on this as soon as possible. You should arrange to speak with me no later than the end of the second week of the semester to discuss possible topics. I will discuss what is generally acceptable on the first day of class.

I have made assignments for twelve weeks of the seminar. Between Week 6 and Week 7 in the syllabus I will pause for a week or two (depending on the size of the class) to talk about term papers. Each person will be required to turn in an outline with a bibliography and to make a short presentation to the class (15 minutes) about their research topic.

I typically set a due date at the end of exams. Of course, earlier submissions are welcome!

Following is the reading list for the course.

## **PART I: LAW**

### **WEEK 1: From Frye to Daubert**

1. Frye v. United States, 293 F. 1013 (D.C. Cir. 1923)
2. Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579, 113 S.Ct. 2786 (1993).

Also worth reading

Faigman, David L. Elise Porter and Michael J. Saks. *Check Your Crystal Ball at the Courthouse Door, Please: Exploring the Past, Understanding the Present, and Worrying About the Future of Scientific Evidence*, 15 Cardozo Law Review 1799 (1994).

### **WEEK 2: Joiner and Kumho Tire: Parts Two and Three of the Daubert Revolution**

1. Standard of Review and the method conclusion puzzle.
  - a. In re Paoli R.R. Yard PCB Litigation, 35 F.3d 717 (3rd Cir., 1994) (pp. 741-50)
  - b. General Electric Co. v. Joiner, 118 S.Ct. 512, 516 (1997)
2. The Scope of Daubert  
Kumho Tire Co. v. Carmichael, 526 U.S. 137, 119 S.Ct. 1167 (1999).

Also worth reading

Faigman, David L., *The Daubert Revolution and the Birth of Modernity: Managing Scientific Evidence in the Age of Science*, 46 U.C. Davis L. Rev. 893 (2013).  
Cheng, Edward, *The Consensus Rule: A New Approach to Scientific Evidence*, 75 Vand. L. Rev. 407 (2022).

### **WEEK 3: Where is Texas**

1. The Texas Position (Civil)
  - a. Du Pont v. Robinson, 923 S.W.2d 549 (Tex. 1995) (adopting Daubert)
  - b. Gammill v. Jack Williams Chevrolet, Inc., 972 S.W.2d 713 (Tex. 1998) (paralleling Kumho)
  - c. Cooper Tire & Rubber Co. v. Mendez, 204 S.W.3d 797 (2006)
  - d. Merck & Co., Inc. v. Garza, 347 S.W.3d 256 (Tex. 2011).
2. Other states  
See: <https://www.expertinstitute.com/resources/insights/daubert-versus-frye-a-national-look-at-expert-evidentiary-standards/> Look at the Maryland Rochkind opinion for a state that recently moved from Frye to Daubert.

### **WEEK 4: The Proof of Specific Causation**

1. Guinn v. Astrazeneca Pharmaceuticals LP, 602 F.3d 1245 (11<sup>th</sup> Cir. 2010) (Seroquel and

- diabetes) (excluded).
2. Bowen v. E.I. Du Pont De Nemours and Co., Inc., 2005 WL 1952859 Del.Super.,2005. Appeal dismissed and judgment affirmed Bowen v. E.I. DuPont de Nemours & Co., Inc., 906 A.2d 787 (Del Supr. 2006). (Benlate and birth defects). (just read the unpublished opinion)
3. Milward v. Acuity Specialty Products Group, Inc., 969 F.Supp.2d 101 (D.Mass. 2013).
4. Nemeth v. Brenntag North America, 194 N.E.3d 266 (N.Y. 2022).
5. Helena Chemical Company v. Cox, 664 S.W.3d 66 (Tex. 2023).

Also worth reading

Sanders, Joseph, et al., *Differential Etiology: Inferring Specific Causation in the Law from Group Data in Science*, 63 Ariz. L. Rev. 851 (2021).

## **PART II: SCIENCE**

### **WEEK 5: Scientific Method and Elementary Statics**

1. FAIGMAN, ET AL., MODERN SCIENTIFIC EVIDENCE: STUDENT EDITION (2012). Chapter 5: Scientific Method
2. FAIGMAN, ET AL., MODERN SCIENTIFIC EVIDENCE: STUDENT EDITION (2012). Chapter 6 Part II.: Statistical Proof

### **A. Toxic Torts.**

### **WEEK 6: Toxicology and Epidemiology**

3. FAIGMAN, ET AL., MODERN SCIENTIFIC EVIDENCE (2012) . Chapter 23: Epidemiology
4. FAIGMAN, ET AL., MODERN SCIENTIFIC EVIDENCE (2012). Chapter 22: Toxicology

### **WEEK 7: Silicone Implants**

1. Hopkins v. Dow Corning Corp., 33 F.3d. 1116 (9<sup>th</sup> Cir. 1994).
2. Meister v. Medical Engineering Corp., 267 F.3d 1123 (D.C.Cir. 2001).
3. Norris v. Baxter Healthcare Corp., 397 F.3d 878 (2005)
4. Institute of Medicine, Safety of Silicone Breast Implants, Executive Summary, Ch 8-9.
5. Worthington, Debra L., Merrie Jo Stallard, Joseph M. Price & Peter J. Goss, *Hindsight Bias, Daubert, and the Silicone Breast Implant Litigation*, 8 Psychology, Public Policy, and Law 154 (2002).

### **B. Forensic Evidence**

### **WEEK 8: Fingerprint Identification**

1. Zabell, Sandy L., *Fingerprint Evidence*, 13 J. L. & Pol'y. 143 (2005).  
Jason M. Tangen & Duncan J. McCarthy, *Human Matching Performance of Genuine Crime Scene Latent Fingerprints*, 38 Law & Hum. Behav. 84 (2014) (maybe things aren't so bad after all, at least down under).
2. Bradford Ulery, et al, *Accuracy and Reliability of Forensic Latent Fingerprint Decisions*, PPNAS (2010).
3. Mitchell, Gregory & Brandon Garrett, *Battling to a Draw: Defense Expert Rebuttal Can Neutralize Prosecution Fingerprint Evidence*. 35 Applied Cognitive Psychol. 976 (2021).
4. Koehler, Jonathan, et al., *The Scientific Reinvention of Forensic Science*. 120, 41 PNAS (2023)

### C. Social Science Evidence

#### WEEK 9: Eyewitness Identification

1. Steblay, Nancy K., *Maintaining the Reliability of Eyewitness Evidence: After the Lineup*, 42 Creighton L Rev, 643 (2008-09).
2. Wells, Gary, et al., *Double-Blind Photo Lineups Using Actual Eyewitnesses: an Experimental Test of a Sequential versus Simultaneous Lineup Procedure*, 39 Law & Human Behavior 1 (2015).
3. Albright, Thomas D. & Brandon L. Garrett, *The Law and Science of Eyewitness Evidence*, 102 B.U. L. Rev. 511 (2022) (Read Section I, III, and IV)
4. *State v. Watson*, 298 A.3d 1049 (N.J. 2023) (focus on in court identification. Pp. 1060-1068).

### PART III. THE ADVERSARIAL SYSTEM

#### WEEK 10: Scientific Epistemology

1. Jennifer L. Mnookin, *Expert Evidence, Partisanship, and Epistemic Competence*, 73 Brooklyn L. Rev. 1009 (2008).
2. *Milward v. Acuity Specialty Products Group, Inc.*, 639 F.3d 11, 18 n. 7 (1st Cir. 2011). (Milward picks up on the idea in Stevens' dissent in *Joiner*).
3. Sanders, Joseph, *Milward v. Acuity Specialty Products Group: Constructing and Deconstructing Science and Law in Judicial Opinions*, 3 Wake Forest J.L. & Pol'y 141 (2013).

#### WEEK 11: The Use of Experts

1. Jurs, Andrew, *Expert Prevalence, Persuasion, and Price*, 91 Ind. L.J. 353 (2016).

2. Sanders, Joseph, *Science, Law, and the Expert Witness*, 72-WTR Law and Contemporary Problems 63 (2009).
3. Sevier, Justin, *The Truth-Justice Tradeoff: Perceptions of Decisional Accuracy and Procedural Justice in Adversarial and Inquisitorial Legal Systems*, 20 Psychology, Public Policy, and Law 212 (2014).
4. Young, Gerald & Jane Goodman-Delahunty, *Revisiting Daubert: Judicial Gatekeeping and Expert Ethics in Court*, 14 Psychological Inquiry & Law 304 (2021).

#### WEEK 12: Juries and Judges.

1. Levettal, Lora M. and Margaret Bull Kovera, *The Effectiveness of Opposing Expert Witnesses For Educating Jurors About Unreliable Expert Evidence*, 32 Law & Hum. Behav. 363 (2008).
2. Schweitzer, N.J. and Michael J. Saks, *Jurors And Scientific Causation: What Don't They Know, and What Can Be Done About It?*, 52 Jurimetrics J. 433 (2012).
3. Gertner, Nancy and Joseph Sanders, *Alternatives to Traditional Adversary Methods of Presenting Scientific Expertise in the Legal System* (Daedalus, Fall 2018).
4. Koehler, Jonathan J., et al., *Science, Technology, or the Expert Witness: What Influences Jurors' Judgments About Forensic Science Testimony?* 22 Psychol. Pub. Pol'y & L. 401 (2016).
5. Riberio, Gianni, et al., *Beliefs About Error Rates and Human Judgment in Forensic Science*. 297 Forensic Science International 138 (2019).

Attendance: The usual law school attendance rules apply. Students are expected to attend classes in person.

Exam: There is no examination. Each person must write a term paper that meets the Law Center writing requirement. This amounts to a 35-page paper.

Use of AI: We will discuss using AI at the beginning of the course.

The University has asked me to include the following information:

Counseling and Psychological Services (CAPS) can help students who are having difficulties managing stress, adjusting to the demands of a professional program, or feeling sad and hopeless. You can reach CAPS ([www.uh.edu/caps](http://www.uh.edu/caps)) by calling 713-743-5454 during and after business hours for routine appointments or if you or someone you know is in crisis. No appointment is necessary for the "Let's Talk" program, a drop-in consultation service at convenient locations and hours around campus.  
[http://www.uh.edu/caps/outreach/lets\\_talk.html](http://www.uh.edu/caps/outreach/lets_talk.html)

### Reasonable Academic Adjustments/Auxiliary Aids

The University of Houston complies with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, pertaining to the provision of reasonable academic adjustments/auxiliary aids for disabled students. In accordance with Section 504 and ADA guidelines, UH strives to provide reasonable academic adjustments/auxiliary aids to students who request and require them. If you believe that you have a disability requiring an academic adjustments/auxiliary aid, please contact the Justin Dart Jr. Student Accessibility Center (formerly the Justin Dart, Jr. Center for Students with DisABILITIES).

### Recording of Class

Students may not record all or part of class, livestream all or part of class, or make/distribute screen captures, without advanced written consent of the instructor. If you have or think you may have a disability such that you need to record class-related activities, please contact the Justin Dart, Jr. Student Accessibility Center. If you have an accommodation to record class-related activities, those recordings may not be shared with any other student, whether in this course or not, or with any other person or on any other platform. Classes may be recorded by the instructor. Students may use instructor's recordings for their own studying and notetaking. Instructor's recordings are not authorized to be shared with anyone without the prior written approval of the instructor. Failure to comply with requirements regarding recordings will result in a disciplinary referral to the Dean of Students Office and may result in disciplinary action.

### Excused Absence Policy

Regular class attendance, participation, and engagement in coursework are important contributors to student success. Absences may be excused as provided in the University of Houston Undergraduate Excused Absence Policy and Graduate Excused Absence Policy for reasons including medical illness of student or close relative, death of a close family member, legal or government proceeding that a student is obligated to attend, recognized professional and educational activities where the student is presenting, and University-sponsored activity or athletic competition. Under these policies, students with excused absences will be provided with an opportunity to make up any quiz, exam or other work that contributes to the course grade or a satisfactory alternative. Please read the full policy for details regarding reasons for excused absences, the approval process, and extended absences. Additional policies address absences related to military service, religious holy days, pregnancy and related conditions, and disability.