



Law, Probability & Risk California Institute of Technology

Instructor: Boris Babic
Email: bbabic@caltech.edu
Office: **B118 Dabney**

Time: TBD
Location: TBD
Office Hours: TBD

COURSE DESCRIPTION

Judgment under uncertainty is a hallmark of legal decision-making. Indeed, some of the earliest developments of probability emerged out of the study of jury behavior. In this course, we will examine how judges and juries use probabilistic reasoning in order to mitigate risk of error. This will take us through some traditional debates in decision theory (expected vs. non-expected utility; causal vs. evidential models), legal epistemology (e.g., causation, justification, direct inference), the economic analysis of law (e.g., welfare vs. accuracy; efficiency) as well as some doctrinal developments that have been developed to mitigate the law's exposure to epistemic risk (e.g., market share liability, joint/alternative liability). We will examine the course material using a mix of tools drawn from philosophy, economics, political science, and legal analysis.

The aim of the course is to sharpen your ability to reason analytically about complex and difficult social problems from an interdisciplinary perspective.

MATERIALS

I will post all readings to Moodle. In addition to academic articles, we will closely examine a number of seminal legal cases. The point of the cases is to give you an opportunity to apply your critical thinking skills to actual disputes that have driven the development of evidence law and criminal procedure in the United States.

ASSIGNMENTS

Three homework assignments (**30%** at 10% each), one 2000 word essay (**20%**), take home final exam (**30%**), participation (**20%**).

SCHEDULE

KNOWLEDGE, ACCURACY, AND WELFARE

- /- **Introduction**
What do PCB, BPA, Vioxx and Silicone Breast Implants Have in Common?
Required. Handout: *Rational Choice and Expected Utility Theory*
- /- **Inverse and Direct Inference**
Required. Levi (1977): *Direct Inference*, Excerpts
Optional. Hacking (1965): *Logic of Statistical Inference*, Excerpts
Required. Handout: *Probability and Bayes' Rule*
- /- **Knowledge Models of Proof**
Required. Smith (2010): *What Else Justification Could Be?*
Required. Joyce (2005): *How Probabilities Reflect Evidence*, Excerpts
Required. Handout: *Resilience and the Beta-Binomial Model*



- /- **Accuracy Models of Proof**
 - Required. Cheng (2013): *Reconceptualizing the Burden of Proof*
 - Optional. Posner (1999): *An Econ. Approach to the Law of Evidence*, Excerpts
- /- **Welfare Models of Proof**
 - Required. Kaplow (2014): *Likelihood Ratio Tests and Legal Decision Rules*
 - Movie. *A Civil Action* (1998)
- /- **Paradoxes of Proof I**
 - Required. Thomson (1986): *Liability and Individualized Evidence*
 - Required. Kahneman & Tversky (1972): *On Prediction and Judgment*, Excerpts
 - Case study. *Smith v. Rapid Transit*, 317 Mass. 469 (1945)
- /- **Paradoxes of Proof II**
 - Required. Redmayne (2008): *Exploring the Proof Paradoxes*
 - Case study. *Kaminsky v. Hertz Corp.*, 288 N.W.2d 426 (Mich. Ct. App. 1980)
- /- **Paradoxes of Proof III**
 - Required. Enoch et al. (2012): *Statistical Evidence, Sensitivity...Knowledge*
 - Case study. *Guenther v. Armstrong Rubber Co.*, 406 F.2d 1315 (3d Cir. 1969)

ETHICS AND DECISION-MAKING

- /- **Evidence, Knowledge and Blame**
 - Required. Buchak (2013): *Belief, Credence and Norms*
 - Required. Moss (2017): *Probabilistic Knowledge*, Excerpts
 - Required. Gardiner (Draft): *Profiling, Safety, and Legal Standards of Proof*
- /- **Tradition and Evidence**
 - Required. Tribe (1971): *Trial by Mathematics*
 - Required. Nesson (1986): *Agent Orange Meets the Blue Bus*, Excerpts
- /- **Racial Profiling I**
 - Required. Colyvan (2001): *Is it a Crime to Belong to a Reference Class?*
 - Case study. *U.S. v. Brignoni-Ponce*, 422 U.S. 873 (1975)
- /- **Racial Profiling II**
 - Required. Bou-Habib (2011): *Racial Profiling and Background Injustice*
 - Case study. *United States v. Weaver*, 966 F.2d 391 (1992)
- /- **Racial Profiling III**
 - Required. Hellman (2014): *Racial Profiling and the Meaning of Racial Categories*

MITIGATING RISK OF ERROR

- /- **Causation and Alternative Liability**
 - Required. Lewis (1986): *Causation*, Excerpts
 - Required. Hitchcock & Knobe (2009): *Cause and Norm*
 - Case study. *Summers v. Tice*, 33 Cal.2d 80 (1948)
- /- **Evidence and Proportional Liability**
 - Required. Rosenberg (1984): *The Causal Connection in Mass Exposure Cases*
 - Case study. *Sindell v. Abbott Labs.*, 26 Cal. 3d 588 (1980)
- /- **From Courtroom to Workplace**
 - Required. Bovens (2016): *Affirmative Action*
 - Case study. *University of California v. Bakke*, 438 U.S. 265 (1978)



ATTENDANCE AND READING

Engaged participation is an important component of this class and I expect everyone to contribute meaningfully to class discussion. This does not mean I will reward those who speak most, however. And it does not mean you cannot do well on the participation component if you're less comfortable speaking up. Learning to articulate your thoughts in a professional, courteous and persuasive manner is an invaluable skill and a goal of this course is to improve your ability to do this.

While the readings are not long, they can be very difficult. As a result, you should plan to spend a fairly significant amount of time reading and re-reading the material, including the case studies.

SUBMITTING ASSIGNMENTS AND LATE POLICY

All papers must be submitted in hard-copy in class on the day they are due and an electronic copy must be sent to the instructor's e-mail address.

If you anticipate needing more time on an assignment, you should contact me in advance. Otherwise, late assignments will be penalized by one-third of a letter grade for each day they are late.

STUDENTS WITH DISABILITIES

If you think you may need accommodation for a disability, please let me know as early as possible.

PLAGIARISM

Written work submitted for a grade in this course must be your own. You are responsible for making sure that none of your work is plagiarized. You should cite the sources you rely on, and err on the side of caution where necessary. Feel free to consult me if you are not sure of the appropriate format for quotations or references.

More information on plagiarism is available on the Hixon Writing Center's website:

www.writing.caltech.edu/students/plagiarism.