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# HISTORY AND PHILOSOPHY OF SCIENCE 122: PROBABILITY, EVIDENCE, AND BELIEF FALL, 2012

**Professor Joel Velasco**

**Class meets Tuesdays and Thursdays, 2:30-3:55 in BBB 3**

Course syllabus

## **Description:**

This course will examine a few aspects of the relationship between Probability and Epistemology. In doing so, we will look at the foundations of probability theory, interpretations of probability, arguments for and against probabilism (the view that we ought to have degrees of belief that are probabilities), conditionalization, and Bayesian confirmation theory.

## **Requirements:**

Attendance in class and participation in discussion, are required and will affect your grade. There will be two problem sets (mostly short essay answers) worth 30% each and one longer final paper worth 40% of your final grade.

## **Office hours:**

My office hours are Mon 11:00-12:00 and Thur 4:00-5:00, or by appointment, in 13 Dabney Hall.

## **Books and readings:**

There are no assigned textbooks for this class. All assigned readings (and many extra readings) will be made available on this website.

This is a tentative schedule/reading list:

### **Week 1 (10/2, 4) - Introduction to the course/probability theory**

- Required Reading
  - Fitelson, [A Decision Procedure for Probability Calculus with Applications](#) (first two sections)
  - Lyon, [The Philosophy of Probability](#) (first two sections)

## Week 2 (10/9, 11) - Interpretations of Probability I

- Required Readings
  - Hájek, [Interpretations of Probability](#), *Stanford Encyclopedia of Philosophy* (through 3.1)
  - van Fraassen, [Indifference: The Symmetries of Probability](#)
    - van Fraassen - [notes and references](#) from Laws and Symmetry (we are reading chapter 12)
  - Hájek, [Interpretations of Probability](#), *Stanford Encyclopedia of Philosophy* (3.4 through end)

## Week 3 (10/16, 18) - Interpreting Probabilities II - Subjective Degrees of Belief

- Required Reading
  - Hájek, [Interpretations of Probability](#), *Stanford Encyclopedia of Philosophy* (section 3.3)
  - Skyrms, [Coherence](#) (defends dutch books)
  - Lewis, [Why Conditionalize?](#)
  - van Fraassen, [Belief and the Will](#)

## Week 4 (10/23, 25) - Diachronic Rationality

- Required Readings
  - Christensen, [Clever Bookies and Coherent Beliefs](#)
  - Maher, [Diachronic Rationality](#)

**\*\*\*First homework assignment - Due 10-25\*\*\***

## Week 5 (10/30, 11/1) - What are Degrees of Belief

- Required Readings
  - Kyburg, [Subjective Probability: Criticisms, Reflections, and Problems](#) (a mistake in the paper)
  - Eriksson and Hájek, [What are Degrees of Belief?](#)

## Week 6 (11/6, 8) - Scoring Rule Arguments for Probabilism

- Required Reading
  - Joyce, [A Non-Pragmatic Vindication of Probabilism](#)
  - Gibbard, [Rational Credence and the Value of Truth](#)

## Week 7 (11/13 [no class on Thursday, 11/15]) - Bayesian Confirmation Theory

- Required Readings

- Sober, Evidence and Evolution (sections 1.1, 1.2)
- Sober, Evidence and Evolution (section 1.3)

### **Week 8 (11/20 [no class on Thursday, 11/22]) - The Problem of Old Evidence**

- Required Readings
  - Glymour, [Why I am not a Bayesian](#)
  - Maher, [Subjective and Objective Confirmation](#)

**\*\*\*Second homework assignment - Due 11-15\*\*\***

### **Week 9 (11/27, 29) - Measuring Confirmation**

- Required Readings
  - Christensen, [Measuring Confirmation](#)
  - Eells and Fitelson, [Measuring Confirmation and Evidence](#)
  - Eells and Fitelson, [Symmetries and Asymmetries in Evidential Support](#)

### **Week 10 (12/4, 6) - Applied Problems**

- Required Readings
  - Dawid, [Bayes's Theorem And Weighing Evidence by Juries](#)
  - Sesardic, [Sudden Infant Death or Murder? A Royal Confusion About Probabilities](#)

**\*\*\*Final homework assignment - Due 12-13\*\*\***