730 Philosophy 101, Sect 01  Logic, Reason and Persuasion

This course meets the following goal: Examine critically philosophical and other theoretical issues concerning the nature of reality, value, knowledge, human experience.

Instructor: Sidney Felder, e-mail: sfelder@rci.rutgers.edu
Rutgers The State University of New Jersey, Spring 2014, Tu & Th 1:10-2:30,

I. Elements of Set Theory (weeks 1, 2 and 3)
   Denumerable and Non-denumerable Infinite Sets; The Paradoxes and Axiomatic Set Theory
   Course Notes: Elements of Set Theory.

II. Linear and Partial Orderings (weeks 3 and 4)
   Linear Orderings; Partial Orderings.
   Upper Bounds and Lower Bounds; Least Upper and Greatest Lower Bounds.
   Course Notes: Linear and Partial Orderings.

III. Truth-Functional Propositional Logic (weeks 4, 5, and 6)
   Symbolism.
   The Logical Constants.
   Logical Implication and Equivalence. Consistency, Satisfiability, and Validity; Spaces of Assignments
   Course Notes: Truth Functional Propositional Logic. Schaum's pps. 44-68

IV. Quantification (weeks 6 and 7)
   ‘All’ and ‘There exists’ — The universal and existential quantifiers.
   Free and Bound variables; Open and Closed Formulae (Sentences).
   Interpretations and Models; Number.
   Logical Strength.
   Course Notes: Quantification Logic. Schaum's ch. 5; ch. 6 pps. 130-149; ch. 9 pps. 223-226

   Midterm

V. Fallacies (week 8)
   Arguments from Pervasiveness of Belief.
   Arguments from Absence of Information.
   Schaum's ch. 8
VI. Probability and Statistics (weeks 8-10)
   Elements of Axiomatic Probability.
   Conditional Probabilities, *a priori* vs. *a posteriori* probabilities; Bayes’ Theorem;
   probabilistic dependence.
   Evidence and Non-monotonicity.
   Sampling and Ascertainment Bias; Bertrand’s Box; the “Monty Hall” problem.
   Interpretations of Probability: Objective and Epistemic Theories.
   Generalizations and Laws; Counterfactuals.
   Statistical Mechanics and the Temporal Anisotropy of physical processes; The Problem of
   Induction.
   *Schaum’s* ch. 9 pps. 226-234; ch. 10

VII. Representation and Measurement in the Natural and Behavioral Sciences (weeks 10, 11, 12)
   Nominal, Ordinal, Interval, and Ratio Scales.
   Aristotelian, Newtonian, and Relativistic Space and Time.
   Euclidean and Non-Euclidean Geometries.
   Psychophysics; Utilities and Probabilities.

VIII. Decisions and Games (weeks 13 and 14)
   The Concept of a Strategy.
   Prisoner’s Dilemma and Prisoner’s Dilemma Repeated; Nash Equilibria.
   Iterated Dominance arguments and Common Knowledge.
   Probabilistic and Causal Dependence; Newcomb’s Problem.
   *Course Notes: Problems of Mutual Expectation. Schaum’s* ch. 9 pps. 234-251; ch. 10

The texts for this class are the following:

A series of short expositions I have written which I refer to as *Course Notes* in the Syllabus.

The *Schaum’s Outlines Logic* (Second Edition), by John Nolt, Dennis Rohatyn, and Achille
Varzi.

There will be a Midterm and a Final. Both will be open book (assigned and unassigned texts,
notes, and other inanimate sources all allowed). (Note that the place, date and time of the Final
Exam — which I will announce later in the term — may not correspond to that given in the Uni-
versity schedule).

A student’s grade will be determined by the grades on the Midterm and Final, and by the quality
of Class Participation. (Note that Class discussion provides an opportunity to demonstrate under-
standing of the material).

My class presents material that is conceptually and philosophically deeper than some students
enrolling in a “Critical Thinking” class may expect. My grading will take this into account.

Note: The university has directed that all syllabi make note of the existence of The Rutgers Self-
Reporting Absence Website (https://sims.rutgers.edu/ssra), as well as of the request that it be uti-
lized by students to indicate the date(s) and reason for their absence from class.