**PHIL 300 PHILOSOPHY OF SCIENCE**

**FALL 2022**

**Instructor:** Gürol Irzık FASS 1049

**Class Hours:** W 13:40-15:30 and R 10:40-11:30

**Office Hours:** R 16:30 or by appointment

**TA:** Berfin Elif Demir Email: berfin.demir@sabanciuniv.edu

**Course description:** This course is an introduction to the main issues in the philosophy of science with some emphasis on the historical evolution of science. Topics to be covered are the birth of modern science; scientific methodology; aims of science; the problem of demarcation; the nature of scientific explanation; the structure of scientific revolutions; objectivity and rationality of science; and public trust in science.

**Lecture Format:** The course will be conducted online. Lectures will be live and recorded. I will upload them to the SUCourse+. Attendance is strongly encouraged.

**Grading Policy:** The course grade will be based two in-class midterm exams (30 % each), a final exam (30%), attendance and participation (10 %). The midterm exam dates are indicated below. The final exam date will be announced by the university. Cheating may result in F in the course and disciplinary action.

**Required readings** are available on the SUCourse. They also include documents about how to study, and a Glossary. Please consult them. Whenever you come across a philosophical concept or position with which you are not familiar, you are advised to use the Glossary and the Stanford Encyclopedia of Philosophy freely available online at <http://plato.stanford.edu/> **You should do the required readings** **before the class meeting so that we can have an informed and fruitful discussion**.

Course content, requirements and policies are subject to change at the discretion of the instructor. If there is a change, you will be notified immediately.

**Recommended readings (On reserve in the Information Center):**

R. Westfall, *The Construction of Modern Science*. New York: John Wiley & Sons, 1971. (Our IC has only the Turkish version.)

A. Chalmers, *What is this Thing Called Science*? 3rd ed. Indianapolis; Cambridge: Hackett, 1999. (On reserve)

***The Routledge Companion to Philosophy of Science*. (Eds.) S. Psillos and M. Curd.** New York: Routledge, 2010. (On reserve)

**Course Readings and Schedule**

**5 Oct.** Introduction

**I. Hypotheses and the Hypothetico-Deductive Method of Testing**

**6 Oct.** C. Hempel, “Scope and Aim of this Book” and “Scientific Inquiry: Invention and Test” (Chapters 1, 2 3), in *Philosophy of Natural Science* (Englewood Cliffs: Prentice Hall, 1966), pp. 1-32.

**12-13 Oct.** Hempel continued.

**II. The Problem of Demarcation and Falsificationism**

**19- 20 Oct.** K. Popper, “Science: Conjectures and Refutations”, in *Conjectures and Refutations*, Routledge, 2002, pp. 43-51.

**III. Statistical-Causal Hypotheses and their Testing**

**26-27 Oct.** R. Giere, “Chapter 8-Evaluating Causal Hypotheses”, in *Understanding Scientific Reasoning*, 4th ed. Harcourt Brace College Pub., 1997, pp. 210-243.

**IV. Experiment and Scientific Theories**

**2-3 Nov**. T. Arabatzis, “Experiment”, in ***The Routledge Companion to Philosophy of Science*. (Eds.) S. Psillos and M. Curd.** New York: Routledge, 2010, pp. 159-172.

**9 Nov**. **First Midterm Exam**

**V. Scientific Explanation**

**10-16 Nov.** P. Godfrey-Smith, “Explanation”, in *Theory and Reality*, The University of Chicago Press, 1977, pp. 190-201.

**VI. Scientific Revolutions**

**17-23 Nov.** T. Kuhn, *The Structure of Scientific Revolutions*, in *Philosophy of Science* (eds) T. McGrew, M. Alspector-Kelly and F. Allhoff, Wiley-Blackwell, 2009. Read pages 489-505 and 509-510.

**24 Nov.-30 Dec.** Finish Kuhn.

**VII. Science as a Social Institution and Its Norms**

**1 Dec.** R. Merton, “The Normative Structure of Science” in *The Sociology of Science: Theoretical and Empirical Investigations*, Chicago: University of Chicago Press, 1973, pp. 267–78.

**7-8 Dec.** D. Resnik, *The Price of Truth*, Oxford University Press, 2007, pp. 42-51.

**14 Dec.** **Second midterm exam**

**VIII. Science or Pseudoscience? Astrology, Parapsychology, Psychoanalysis, and the Search for Extraterrestrial Life**

**15 Dec.** M. Pigliucci, “Not in the Stars: Astrology as Bunk”, in *Nonsense on Stilts*, The University of Chicago Press, 2010, pp. 62-68.

**21 Dec.** E. Goode, “Paranormalism and Pseudoscience as Deviance”, in *Philosophy of Pseudoscience* (eds.) M. Pigliucci and M. Boudry, The University of Chicago Press, 2013, pp. 145-163.

**22 Dec.** M. Pigliucci, “How Do We Find out if Anybody is out There”, in *Nonsense on Stilts*, The University of Chicago Press, 2010, pp. 33-40.

**IX. Why Should We Trust Science?**

**28-29 Dec.** N. Oreskes, *Why Trust Science*?, Princeton: Princeton University Press, pp. 55-64.

**4-5 Jan.** P. Kitcher and E. F. Keller, *The Seasons Alter*. New York: Liveright, pp. 1-19.