PHIL 300 PHILOSOPHY OF SCIENCE
FALL 2020

Instructor: Gürol Irzık FASS 1049
Class Hours: M 13:40-15:30 and T 12:40-13:30
Office hours: W 16:30-18:00 or by appointment
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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 emergence of science; the Scientific Revolution in the 16th and 17th centuries; scientific hypotheses, theories and their testing; aims of science; the problem of demarcation; the problem of induction; the nature of scientific explanation; objectivity and rationality of science; and the relationship between science and values.

Lecture Format: Due to the pandemic, the course will be conducted online. Lectures will be live and recorded. I will upload them to the Google drive in the SUCourse+. Attendance is strongly encouraged.

Grading Policy: The course grade will be based one midterm exam (30 %), several take-home exams (30 %), and the final exam (40 %).

The midterm exam, as indicated below, will be given during class time from 13:40 to 15:30 on November 16 and recorded. You should turn on your cameras during the entire exam. If I suspect of cheating or plagiarism, I will conduct an interview, record it and decide what to do. Cheating and plagiarism are serious academic offenses. They may result in F in the course and disciplinary action. The midterm exam will essentially contain short essay questions; it may also contain true/false and multiple choice questions. The exam aims to test your comprehension of the readings and lectures, your ability to apply them in new situations and express yourself clearly and well.

The final exam date will be announced by the university. While it will focus on material after the midterm exam, you are responsible for all material covered from the beginning of the semester. The format and mechanics of the final exam is similar to the midterm exam as described above.

There will be several (4-6) **take-home exams** in which you will be asked to answer a short question in a page or two. I will drop the lowest one of them. The aim of the take-home exams is to test your comprehension of the readings and lectures, your ability to apply them in new situations and express yourself clearly and well.

Required readings are available on the SUCourse+. They also include documents about plagiarism, 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**.

Course content, requirements and policies are subject to change at the discretion of the instructor.

Recommended readings (On reserve in the Information Center):

D. Lindberg, *The Beginnings of Western Science*, 2nd ed. Chicago: Chicago University Press, 2007.

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, Structure and Schedule

I. The Emergence of Science and Early Greek Science

Oct. 5: Introduction

Oct. 6: G. E. R. Lloyd, "The Background and the Beginnings", *Early Greek Science: Thales to Aristotle*. New York: W. W. Norton & Company, 1970, pp. 1-15.

Oct. 12-13: J. Jacob, "The Classical Legacy", *The Scientific Revolution*. New York: Humanity Books, 1999, pp. 1-17.

II. Physical Science in the Middle Ages

Oct. 19-20: E. Grant, Excerpts from *Physical Science in the Middle Ages*. Cambridge: Cambridge University Press, 1977, pp. 48-59 and 83-90.

III. The Scientific Revolution

Oct. 26-27: M. Alspector-Kelly, "Unit 2: The Scientific Revolution", in T. McGrew, M. Alspector-Kelly and F. Allhoff (eds.), *Philosophy of Science: An Historical Anthology*. Wiley-Blackwell, 2009, pp. 95-107.

Nov. 2-3: Alspector-Kelly finished.

C. Huygens, "Successful Hypotheses and High Probability", in T. McGrew, M. Alspector-Kelly and F. Allhoff (eds.), *Philosophy of Science: An Historical Anthology*. Wiley-Blackwell, 2009, pp. 162-163.

IV. Scientific Methodology, Inductivism and Falsificationism

Nov. 9: C. Hempel, "Scope and Aim of this Book" and "Scientific Inquiry: Invention and Test" (chapters 1 and 2), in *Philosophy of Natural Science* (Englewood Cliffs: Prentice Hall, 1966), pp. 1-32.

Nov. 10: A. F. Chalmers, "Inductivism: Science as Knowledge Derived from the Facts of Experience" and "The Problem of Induction" in *What is this Thing called Science*?" 2nd ed. University of Queensland Press, Open University Press, 1982, pp. 1-12.

Nov. 16: **MIDTERM EXAM**

Nov. 17: Chalmers continued.

Nov. 24-30: K. Popper, "Science: Conjectures and Refutations", in *Conjectures and Refutations*, Harper and Torch books, 1963, pp. 33-59.

Dec 1-7: R. Giere, "Chapter 8-Evaluating Causal Hypotheses", in *Understanding Scientific Reasoning*, 4th ed. Harcourt Brace College Pub., 1997, pp. 210-243.

V. Freud's Psychoanalysis: Science or Pseudo-Science?

Dec 8-14: S. Freud, *An Outline of Psychoanalysis* (New York: W. W. Norton and Company 1989), pp. 13-46.

R. Fancher, "The Background of Freud's Thought", in *Psychoanalytic Psychology*, (New York: W. W. Norton and Company), pp. 1-9.

VI. Experiment

Dec. 15: T. Arabatzis, "Experiment", in *The Routledge Companion to Philosophy of Science*. (Eds.) S. Psillos and M. Curd. New York: Routledge, 2010, pp. 159-17.2

VII. Understanding Scientific Revolutions

Dec. 21-22: T. Kuhn, *The Structure of Scientific Revolutions*, in *Philosophy of Science* (eds) T. McGrew, M. Alspector-Kelly and F. Allhoff, Wiley-Blackwell, 2009.

VIII. Ethics of Science and Trust in Science

Dec. 28-29: D. B. Resnik, *The Price of Truth*, Oxford University Press, 2007, pp. 42-51

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

G. Irzık and F. Kurtulmuş, "What is Public Trust in Science"? Abridged. Full version can be found in *The British Journal for the Philosophy of Science*, 70 (4): 1145-1166, 2019.