

# Course Summary for “The Philosophy of Howard Stein”

Dr. Erik Curiel

[Erik.Curiel@lrz.uni-muenchen.de](mailto:Erik.Curiel@lrz.uni-muenchen.de)

office: Ludwigstr. 31, R130

office hours: by appointment (email me)

course website: <http://strangebeautiful.com/lmu/2018-winter-stein.html>

Winter, 2018–2019

Wed. 12:00–14:00 *C.T.*

Ludwigstr. 31, 028

## 1 Course Description

Howard Stein is one of the most widely admired and influential philosophers of science in general and physics in particular of the Twentieth Century—at least among *cognoscenti*. His work is not nearly so well known as it deserves to be outside a small group of leading experts, and this seminar aims to begin to redress that problem. Indeed, it is no exaggeration to say that the publication of Howard Stein’s paper “Newtonian Space-Time” in 1967 inaugurated the modern study of the foundations of physics. Thereafter, Stein’s work continued to set the standard in the philosophical community and beyond for the study of theories of spacetime structure (Newtonian and relativistic), the conceptual structure of quantum mechanics, the methodology of science in general and the character of scientific knowledge, and the history of physics and mathematics. Shaped by a deep sensitivity to the history of the problems he wrote on and informed by an intimate knowledge of the technical and formal material of the science itself, Stein’s work has demonstrated the importance, to metaphysics and to epistemology, of the development of physics; and the importance to scientific thought of essentially philosophical ideas. He has taught us that metaphysics, physical theory, and scientific method are deeply intertwined—an insight that may today seem commonplace, but which was hardly appreciated by the Logical Empiricists who preceded Stein, and which could not have been achieved without the historical, philosophical and mathematical sophistication that Stein brought to bear in his work. No single-term course could hope to cover all the topics on which Stein’s work has had a profound impact. This seminar, therefore, will focus only on three inter-related strands of his thought, coming from his work on methodology and epistemology, on space, time and relativistic spacetime, and on the relation of physics to metaphysics. Besides grappling with Stein’s particular arguments and conclusions, the focus will be on understanding Stein’s distinctive and powerful method of investigation, combining historical knowledge, understanding of formal and technical machinery, and deep philosophical reflection.

## 2 Structure and Evaluation

The class period will consist of lectures by Dr. Curiel, based on the assigned reading, with at least one third of the class time dedicated to open discussion. There will also be opportunities for students to give presentations (20–30 minutes) on topics they are particularly interested in. The schedule of topics and assigned and suggested readings can be found here:

<http://strangebeautiful.com/lmu/lectures-lmu-stein.pdf>.

**The course is worth 9 ECTS.** The grade for the course will be determined by a term paper of approximately 5000 words, due some time in mid-March 2019, the exact date still to be determined. Please email me your paper as a PDF. The paper will be on a subject of the student's choice, though I will provide suggested paper topics. I strongly urge students to consult with me before choosing a topic. I will be happy to read and comment on rough drafts of the final paper, so long as they are given to me at least three weeks before the due date.

## 3 Readings

Most of the required and suggested readings are available online at the course's website, though they may not be listed as such in the bibliography contained in the schedule of lectures:

<http://strangebeautiful.com/lmu/2018-winter-stein.html>

## 4 Tentative Schedule

**LECTURES 1–3 (17–31 Oct)** Newton's methodology and metaphysics, and his contemporaries

**LECTURES 4–7 (07–28 Nov)** Space, Time, and Spacetime

**LECTURES 8–11 (05 Dec – 09 Jan 2019)** Methodology, epistemology, and the structure of our knowledge in physics

**LECTURES 12–15 (15 Jan – 06 Feb)** Physics and metaphysics

**FINAL PAPER DUE: 25. MARCH 2019**

**FINAL COURSE GRADES SUBMITTED: 15. APRIL 2019**