

# Course Summary for “The Structure and Semantics of Scientific Theories”

Dr. Erik Curiel

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course website:

<http://strangebeautiful.com/lmu/2016-winter-sems-theors.html>

Winter, 2016

Thursdays, 14:00–16:00 C.T.

Ludwigstr. 31, 021

## 1 Course Description

The idea of a scientific theory and the way that it makes contact with and represents the world (or, at least, that part of the world it purports to treat) ramifies into most if not all of the major problems in the philosophy of science: the structure of scientific knowledge, the relation between theory and experiment, the realism and instrumentalism debate, the analysis of confirmation, the meaning of theoretical terms, the problem of induction and other forms of scientific reasoning, and on and on. For this reason, the problem of understanding the structure of scientific theories and of providing an adequate account of their semantics—how it is that their formal structures acquire empirical content, and what that empirical content is—may be the single most important problem in philosophy of science. It is certainly one of the most central problems. In this seminar, to try to get a grip on what exactly the problem is, and what promising avenues of attack on it may be, we will begin by reviewing the two major schools of thought advanced in the 20th Century to try to address the problem, the so-called Received View of the Logical Empiricists and the more recent Semantic View initiated in the late 1950s primarily by Suppes, *et al.*, including prominent criticisms of them, to determine their respective strengths and weaknesses. We will then spend the majority of the term on a study of a few of the most influential contemporary approaches, including the neo-structuralists, the neo-Kantians, the inferentialists, and the neo-Carnapians. Along the way, the questions of the nature of scientific representation, scientific models, and approximation and idealization will play a prominent role.

## 2 Structure and Evaluation

The class period will consist of lectures by Dr. Curiel, based on the assigned reading. The schedule of lectures (topics and assigned and suggested readings) can be found here:

<http://strangebeautiful.com/lmu/lectures-lmu-sems-sci-theors.pdf>.

**The course is worth 9 ECTS.** The grade for the course will be determined by a term paper of approximately 5000 words, due sometime in the end of March, exact day to be determined. 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 two 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:

<http://strangebeautiful.com/lmu/2016-winter-sems-theors.html>

### 4 Tentative Schedule

#### INTRODUCTION AND HISTORICAL BACKGROUND

**Week 1 (20. Oct)** Introduction

**Week 2 (27. Oct)** Russell, Ramsey and the Roots of Structuralism

**Week 3 (03. Nov)** NO LECTURE: Dr. Curiel out of town

#### THE LOGICAL EMPIRICISTS AND THE "RECEIVED VIEW"

**Week 4 (10. Nov)** Carnap

**Week 5 (17. Nov)** Hempel, and Modifications to and Criticisms of the Received View

#### THE SEMANTIC VIEW

**Week 6 (24. Nov)** Tarskian Semantics and Suppes View

**Week 7 (01. Dec)** van Fraassen; Critics of the Semantic View

#### CONTEMPORARY APPROACHES

**Week 8 (08. Dec)** Neo-Structuralism I

**Week 9 (15. Dec)** Neo-Structuralism II

**Week 10 (22. Dec)** Neo-Kantianism I

**Week 11 (12. Jan)** Neo-Kantianism II

**Week 12 (19. Jan)** Inferentialism

**Week 13 (26. Jan)** NO LECTURE: Dr. Curiel out of town

**Week 14 (03. Feb)** Neo-Carnapianism I

**Week 15 (10. Feb)** Neo-Carnapianism II

#### FINAL PAPER DUE: 31. MARCH