History of Science 5550
Cognitive Studies of Science

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Course Information

Class meets: W 6:30 - 9:30 pm, PHSC 627 (HSCI conference room). Office hours: TuTh 11:00-12:00 or by appt.

Course Goals: The main purpose of the course is to present the frame model of concepts in a form that will be useful to historians, philosophers and other people who need to deal with conceptual problems. The recent application of the model by Andersen, Barker and Chen (2006) extends and reformulates the influential account of the history of science originally presented by Kuhn in *The Copernican Revolution* (1957) and *The Structure of Scientific Revolutions* (1962, 1970, 1996). We will begin the course by re-examining Kuhn's work, highlighting its cognitive features, and continue with a detailed reading of Andersen, Barker and Chen (2006), with some supplementary material for key chapters.

Course work: During the first half of the course participants will be encouraged to select a research project that employs the frame methods presented in the course. This may be the analysis of an historical episode or a practical problem (for example in science pedagogy), or a philosophical or historiographical examination of one of the aspects of science highlighted by Kuhn. This list is intended to be suggestive, not exhaustive, and the Instructor will be happy to discuss alternative ideas.

Participants will be expected to make a presentation based on their research during weeks 12-15, allowing time for them to benefit from discussion of their work before submitting a final written draft.

Students with disabilities: Students with any disability that may prevent them from fully demonstrating their abilities and accomplishments in this course should contact the Instructor as quickly as possible, to discuss any accommodations that may be needed.

Grades: Research project 33%; class presentation 33%, class participation 33%. There is no curve.

Texts:
SSR = Thomas S. Kuhn *The Structure of Scientific Revolutions* (Chicago: University of Chicago
ABC = Hanne Andersen, Peter Barker and Xiang Chen The Cognitive Structure of Scientific Revolutions (Cambridge: Cambridge University Press, 2006)*

* This text will be available at a significant discount to class participants; come to first class before purchasing.

**Recommended additional texts:**
OK = Hanne Andersen On Kuhn (New York: Wadsworth, 2001)

**Course calendar** (version 1.0 - may be revised)

Week 1: Introduction, overview and planning

**The Structure of Scientific Revolutions**
Week 2 From normal science to revolutionary science: SSR ch.s 1-8 [OK #3.1 -- 3.2.6]
Week 3 Incommensurability I: SSR ch.s 9-10; Paul Hoyningen-Huene "Incommensurability..." [OK # 3.2.7 ]
week 5 SSR Postscript 1969, and "Second Thoughts on Paradigms" ET 293-319

**The Cognitive Structure of Scientific Revolutions**
Week 6 The Roschian Revolution: ABC ch. 1; E. Rosch and C. B. Mervis "Family resemblances: Studies in the internal structures of categories" Cognitive Psychology 7 (1975) 573-605
Week 7 Kuhn on concepts: ABC ch. 2; Thomas S. Kuhn, "The road since Structure" PSA 1990 2: 3-13 [OK Ch 4]
Week 8 The frame model: ABC ch. 3; Lawrence W. Barsalou, "Frames, concepts and conceptual fields"
week 9 Scientific change -- explaining what did and didn't happen: ABC ch. 4

**Spring Break**
week 10 Incommensurability II: ABC ch. 5
Week 11 The Copernican Revolution: ABC ch. 6

**Reports on Projects**
Week 12
Week 13
week 14
week 15

**Research Project Final Draft due: 5:00 pm Friday, May 04**