

Philosophy of Science and Cognitive Science

2002-2007

(Ph.D graduate program course, Department of Philosophy, Sun Yat-sen University)

1. Towards a cognitive theory of science: Naturalized philosophy of science
2. Knowledge presentation and mental representations of scientific knowledge
3. Mental images and imagination in scientific thinking
4. Concept and categorization: Cognitive models, semantics, and metaphysics
5. Schema: frame, script, and (logical) mental model
6. Theory: causal mental model and naive theory
7. Reasoning and cognitive approaches to scientific reasoning
8. Reasoning: analogy, induction, causal inference, and scientific inference
9. Abduction
10. Thought experiment and mental simulation
11. Scientific explanation
12. Scientific discovery and conceptual changes
13. Model-based reasoning in science

Cognitive Studies of Science

2005-2007

(Undergraduate course, Department of Philosophy, Sun Yat-sen University)

1. Naturalized philosophy of science and cognitive theories of science
2. The problem of representation in cognitive science and the structure of scientific knowledge
3. The conceptual structures in science: Concept and categorization
4. From the sentential model to the multi-form-and-multi-level representations of scientific constructs
5. scientific inference in cognitive science
6. Rule-based, case-based, and model-based reasoning in philosophy of science
7. Scientific discovery and conceptual revolution