

**THE UNIVERSITY OF WESTERN ONTARIO**  
**DEPARTMENT OF PHILOSOPHY**  
**Undergraduate Course Outline 2011-12**

**Philosophy 3330F: Philosophical Foundations of Space-Time Theories**  
**Previously Philosophy 331**

**Fall Term 2011**

**M 3:30-4:30, W 2:30-4:30**  
**TC 203**

**Instructor: Prof. DiSalle**

**Stevenson 4142, Office Hours: W11:00- 1:00 (and**  
**by appointment)**  
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**DESCRIPTION**

Philosophers have reflected on the concepts of space, time, and motion since ancient times. With the birth of modern physics, however—especially in the work of Galileo, Descartes, and Newton—these questions acquired a new significance, as urgent problems for the foundations of physics. Scientific ideas such as the motion of the earth, the infinity of space, and the application of physical laws to celestial motions, raised questions in metaphysics and epistemology that demanded philosophical reflection. These questions have persisted even into present-day physics. Especially since the work of Einstein, such questions have continued to bring philosophy and physics into close interaction. This course considers the philosophical issues raised by the physics of space and time: are space and time objectively real, or merely abstractions from spatial and temporal relations? Is motion absolute or relative? Is our knowledge of space and time factual or conventional? What is the relation between our intuitive views and our scientific knowledge of space and time? How do conceptions of space and time relate to theories in other areas of physics, of science generally?

Authors to be studied include: Newton, Leibniz, Kant, Mach, Poincaré, Einstein, and others. No physics background is presupposed; elementary concepts of space and time will be introduced in an intuitive and self-contained way.

**TEXTS**

DiSalle, *Understanding Space-time: The Philosophical Development of Physics from Newton to Einstein*. (Available at UWO Bookstore.)

(Supplementary readings to be posted online)

Coursepack from *InPrint*, in the UC.

**OBJECTIVES**

1. To grasp the epistemological and metaphysical issues concerning space, time, and motion
2. To gain an elementary understanding of the history of the science of space and time
3. To gain a philosophical understanding of elementary concepts of space-time geometry
4. To understand the role of philosophy in the history of modern physics

5. To develop competence in critical analysis by careful reading and discussion
6. To develop skills of oral expression and argument through class discussion
7. To develop writing skills through written assignments

## **REQUIREMENTS**

2 short essays (each 25% of the final mark; one final exam (40%), class participation (10%).

## **AUDIT**

Students wishing to audit the course should consult with the instructor prior to or during the first week of classes.

The **Department of Philosophy Policies** which govern the conduct, standards, and expectations for student participation in Philosophy courses is available in the Undergraduate section of the Department of Philosophy website at <http://uwo.ca/philosophy/undergraduate/policies.html>. It is your responsibility to understand the policies set out by the Senate and the Department of Philosophy, and thus ignorance of these policies cannot be used as grounds of appeal.