

Philosophy 395S: Philosophy of Space and Time  
Fall, 2016

TuTh 4-5:15 127 Bartlett

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Office Hours: Wednesday 3-4, and by appointment

**Course Prerequisites.** This is a challenging course! Although nothing beyond high school algebra and physics is required, it would be unwise to take this course if you are uncomfortable with mathematical or symbolic modes of reasoning. Also, although no specific philosophical background is required, some experience and sophistication in analyzing and evaluating philosophical arguments is needed. Therefore, I have made having two previous philosophy courses a prerequisite for taking this course. (Philosophy 100, for example, and some experience with arguments for skepticism about the external world, would be helpful.)

**Course Requirements.** A take-home midterm exam and a take-home final exam, each worth one-third of the grade. The other third will be based on one-page assignments on the readings (everyone must do three of these) and class participation.

**Readings.** We will be reading most of Wesley Salmon's book *Space, Time, and Motion* and big chunks of Lawrence Sklar's book *Space, Time, and Spacetime*. I have ordered these books for the course, but purchasing them is optional since everything that I assign as reading will also be on my website. The readings are password protected. E-mail me for the password.

**Schedule.** The exact schedule is not set in advance. The readings and writing assignments will be given out in class the week before they are due. They will also be e-mailed to the class. The following is a tentative list of topics:

1. Zeno's Paradoxes of Motion
  - a. Infinity machines: the possibility of completing an infinite task
  - b. Zeno's arrow: being vs. becoming, and the myth of passage
  - c. Zeno's paradox of plurality: the continuum.
2. The Epistemology of Geometry
  - a. Euclidean vs. non-Euclidean geometry
  - b. Gravity and the curvature of space: General Relativity.
  - c. Conventionalism: Is there a fact about the structure of space?
3. Absolute Space and Time: Newton vs. Leibniz
  - a. Galilean relativity
  - b. Newton's rotating bucket
  - c. Mach's criticism: positivism vs. metaphysics

4. Special Relativity
  - a. Space and time vs. spacetime
  - b. The twin paradox
  - c. The conventionality of simultaneity
5. Time Travel: Is it possible? (Grandfather paradox)
6. Quantum Mechanics and Bell's Theorem: spooky action at a distance?

**Plagiarism.** The UMass Amherst Academic Regulations defines plagiarism as follows: "Knowingly representing the words or ideas of another as one's own work in any academic exercise. This includes submitting without citation, in whole or in part, pre-written term papers of another or the research of another, including but not limited to commercial vendors who sell or distribute such materials." All cases of plagiarism will be reported to the academic honesty office. The penalty for plagiarism ranges from a zero on the assignment involved (in less severe cases) to an F for the course (in the most severe cases). All students are expected to be aware of the University policies on plagiarism and academic dishonesty.