

# Philosophy 411

## Philosophy of Space and Time

Professor: Sara Bernstein (sara.bernstein@duke.edu)

TA: Heather Wallace (heather.wallace@duke.edu)

MW 1:25-2:40pm Friedl 107

Does time exist? If so, what is required for its existence? Is the present metaphysically privileged in some way, or is the present just like the past and the future? Are pastness, presentness, and futurity objective properties of reality or mere human projections? Does time actually “pass”? Does time have an intrinsic direction? What does time have to be like in order for time travel to be possible? Is time like space? Is space “substantive,” like jello that infuses reality, or merely a relation between solid things? What does it mean to say that time is relative to space? This course will explore these and other questions relating to space and time through metaphysics and science fiction.

### Required Texts:

*Einstein's Dreams*, Alan Lightman

... and numerous others, available on the course website.

### Course requirements:

Course Requirements: two 4-7 page papers, each worth 30%; one cumulative final exam, worth 30%; class participation, worth 15%.

Extra credit opportunities will also be available.

### Schedule:\*

Wednesday, January 9: Introduction to Philosophy of Space and Time

Monday, January 14: How is Time like Space?

- Taylor, “Spatial and Temporal Analogies and the Concept of Identity”
- *Einstein's Dreams* pp. 28-32, 153-157

Wednesday, January 16: A and B Theories of Time

- Dean Zimmerman, “The A Theory of Time, The B Theory of Time, and Taking Tense Seriously”

January 21: NO CLASS. MLK Day.

January 23: Eternalism

- Ted Sider, *Four Dimensionalism* (excerpt)
- Kurt Vonnegut, *Slaughterhouse Five* (excerpt)

January 28: Presentism and Moving Spotlight

- Brad Skow, "Why Does Time Pass?" pp. 1-11
- Dean Zimmerman, "The Privileged Present"

**January 30:** Eternalism vs. Presentism wrap-up

February 4: Growing Block

- Trenton Merricks, "Goodbye Growing Block"
- *Einstein's Dreams* pp. 128-132

February 6: Time's Passage

- Ned Markosian, "How Fast Does Time Pass?"
- *Einstein's Dreams*, pp. 23-32

February 11: Time's Passage, continued

- Brad Skow, "Experience and the Passage of Time"
- *Einstein's Dreams*, pp. 13-17, 123-127

February 13: Time Travel: Paradoxes

- David Lewis, "The Paradoxes of Time Travel"

February 18: Time Travel: Without Paradox?     \*\*\*First Paper Due.\*\*\*

- Peter van Inwagen, "Changing the Past"

February 20: Time Travel: Causal and Informational Loops

- Richard Hanley, "No End in Sight"
- Robert Heinlein, "By His Bootstraps" (short story)

February 25: Time Travel: Possibility

- Phil Dowe, "The Case for Time Travel"

February 27: Time Travel: Within Different Theories of Time

- Ted Sider, "Traveling in A and B Time"

March 4: The Direction of Time

- DH Mellor, "Causation and the Direction of Time"
- *Einstein's Dreams* pp. 66-69, 102-106

March 6: The Direction of Time, continued

- Sean Carroll, *From Eternity to Here* (excerpt)
- *Einstein's Dreams*, pp. 8-12, 38-42

March 11, 13: No class. Spring break.

March 18: Persistence: Perdurantism

- Sally Haslanger, "Persistence Through Time"

March 20: Persistence: Endurantism      \*\*\*Second Paper Due.\*\*\*

- Haslanger, continued
- Nikk Effingham, "A Mereological Challenge to Endurantism"

**March 27:** Historical Conceptions of Space

- Robert Rynasciewisc, "Newton's Views on Space, Time, and Motion"

April 1: Is Space Substantive?

- Tim Maudlin, "Buckets of Water and Waves of Space: Why Spacetime is Probably a Substance"

April 3: Substantivalism versus Relationalism, continued

- Jonathan Schaffer, "Spacetime the One Substance"

April 8: Is Space Relational?

- Paul Teller, "Substance, Relations, and Arguments about the Nature of Space-Time" (pp. 1-13)

April 10: Spacetime Relativity

- Katherine Hawley, "Metaphysics and Relativity"

**April 15:** Relativity, continued

- Paul Nahin, "Special Relativity and Time Travel to the Future"

**April 17:** What are Holes?

- Steffi and David Lewis, "Holes"
- Casati and Varzi, "Holes"

April 22: Holes, continued

- David Lewis, "Void and Object"

April 24: Review.

\*\*\*Friday, May 3: Final exam.\*\*\*

\***Bolded** days indicate sessions led by Heather Wallace.

### Syllabus Changes

It is possible that topics will be added, removed, or changed on the syllabus. If this happens, it will be announced in class and over email.

Ways to Reach Sara, or her Indistinguishable Robot Clone:

Email: sara.bernstein@duke.edu

Office Hours: 201G West Duke, Wednesdays 11am-12pm, or by appointment.

Ways to Reach Heather:

Email: heather.wallace@duke.edu

Office Hours: 201 West Duke, Mondays 2:45-4:30.