

Dartmouth College
Spring 2015

PHIL 1.08 (10) | Philosophy of Time and Time Travel

Course Description

On the one hand, time is completely familiar. On the other, it is a total mystery. As you might expect, the combination makes for good philosophy. In this course, we will study a variety of philosophical puzzles concerning the nature of time. Is time an illusion? Does time pass? Is the present special? Is time travel possible? Do the past and future exist? Does time have a direction? What is spacetime? What are the special and general theories of relativity? What do they imply about the nature of time?

This course has no prerequisites. It is designed to function as a first course in philosophy. Throughout the course, emphasis will be placed on the careful formulation of theses and the precise evaluation of arguments.

Instructor Information

James P. Binkoski
Department of Philosophy
Thornton 313

Email: james.p.binkoski@dartmouth.edu
Office Hours: Wednesday 12:30-3:00 or by appointment

Texts (Subject to Change)

- Geroch. *General Relativity From A to B*.
- [All other readings will be available online.]

Course Requirements (Subject to Change)

20% *Present, Explain, Evaluate*

Two short analysis papers (2 pages) in which you present, explain, and evaluate an argument from the reading.

10% *Homework*

Two short homework assignments (1-2 pages) dealing with course readings. These will be graded complete/incomplete. Basically, all that I am looking for is a good-faith effort at engaging with the course reading.

50% *Papers*

Two papers (5 pages). Topics to be announced.

20% *Final project*

Choose one of the following options for a final project.

- *Media Project*. Create a poster, a short film, a webpage, or some other piece of media in which you (i) introduce a topic or problem discussed in class, (ii) present and evaluate some of the standard arguments surrounding the topic, and (iii) draw a conclusion, if possible. Groups of two permitted.
- *Final Paper*. A final 8 page paper that substantively revises and expands upon one of your earlier papers. Students choosing this option must meet with me to discuss their plans for revising their work.

Attendance

Class attendance is required. New material will be presented during lecture, there will be periodic in-class assignments and group projects, and class discussion will provide an opportunity to (i) further develop your skills at analysis, and (ii) explore course-related topics in greater depth.

Academic Honesty

Plagiarism and cheating are serious academic offenses. I will always do my best to make guidelines on assignments as clear as possible. But if you are ever unsure whether some action would count as an academic offense, please see me and I will help guide you.

You can read the College's Academic Honor Principle [here](#).

Extra Assistance

Dartmouth College is committed to the full inclusion of all students, and so am I. Students with disabilities who may need disability-related academic adjustments and services for this course are encouraged to see me privately as early in the term as possible. Students requiring disability-related academic adjustments and services must contact the Student Accessibility Services Office:

205 Collis Student Center

Phone: 646-9900

Email: student.accessibility.services@dartmouth.edu

Once SAS has authorized services, students must share with me their originally signed SAS Services and Consent Form and/or a letter on SAS letterhead. As

a first step, if students have questions about whether they qualify to receive academic adjustments and services, they should contact the SAS office. All inquiries and discussions will remain confidential.

Finally, the writing center at Dartmouth is fantastic; all students are encouraged to take advantage of its services. You can link to the writing center [here](#).

Religious Observances

Some students may wish to take part in religious observances that occur during this academic term. If you have a religious observance that conflicts with your participation in the course, please meet with me before the end of the second week of the term to discuss appropriate accommodations.

Course Topics At A Glance

Week 1. Is time an illusion?

Week 2. From space and time to spacetime

Week 3 & 4. Is the present special?

Week 4 & 5. Does time pass?

Week 6 & 7. The special and general theories of relativity

Week 8. Does time have a direction?

Week 9. Is time travel possible?

Course Readings (Subject to Change)

Week 1 **Is Time an Illusion?**

Some of the earliest writings on time tried to argue for the claim that time is an illusion. We will look at two different arguments for this claim, one by the ancient Greek philosopher Parmenides (approx. 535 BCE) and one by the early Christian philosopher Augustine of Hippo (354-430).

- Parmenides.
- Zeno.
- Augustine.

Week 2 **From Space and Time to Spacetime**

During the 17th century, Isaac Newton put physics on a firm foundation when he introduced his three laws of motion. And he put those laws of motion on a firm foundation when he introduced his theories of space and time. This week we study Newton's views on space and time, Leibniz's criticisms of those views, and the twentieth century synthesis of space and time into spacetime.

- Newton, *Principia*.
- Leibniz, *Correspondence*.
- Geroch, *General Relativity from A to B*.

Week 3 & 4 **Is the Present Special?**

Most of us think that only present things exist. But many philosophers deny this. Many philosophers think that past and future things exist in just the same way that present things exist. This week, we look at arguments against the claim that the present is special.

- McTaggart, 'The Unreality of Time'.
- Sider, *Four-Dimensionalism*.

Week 4 & 5 **Does Time Pass?**

Eternalism, the thesis that past, present, and future things exist, is sometimes faulted for being a theory according to which time is static. Critics argue that such a theory fails to appreciate the most central characteristic of time, namely, that time passes. But what could this mean? What could it mean to say that time passes? And is it true that time passes?

- Sider, *Four-Dimensionalism*.
- Markosian, 'A Defense of Presentism'.
- Zimmerman, 'The Privileged Present'.
- Markosian, 'How Fast Does Time Pass?'

Week 6 & 7 **Time in the Special and General Theories of Relativity**

Perhaps nothing has altered our thinking about time more than the publication in 1905 of Einstein's special theory of relativity. We will study a geometric version of Einstein's theory and learn about its implications concerning time.

- Geroch, *General Relativity from A to B*.

Week 8 **Does Time Have a Direction?**

Intuitively, time exhibits directionality. Indeed, such directionality is manifest in a general asymmetry between the past and the future. But the fundamental laws of physics, for the most part, exhibit a kind of symmetry between the past and the future. So from whence the directionality of time?

- Greene, *Fabric of the Cosmos*.
- Kelly, 'Sunk Costs'.

Week 9 **Is Time Travel Possible?**

We have all seen films in which the protagonist travels back in time. Is such travel really possible? We look at a variety of worries concerning time travel, including the grandfather paradox and worries concerning closed causal loops.

- Lewis, 'Paradoxes of Time Travel'.
- Arntzenius, 'Double Your Pleasure'.
- Vihvelin, 'What Time Travelers Cannot Do'.
- Sider, 'Traveling in A and B Time'.