



Louis Hector Berlioz once wrote, “Time is a great teacher, but unfortunately it kills all its pupils...” He was right about both claims, of course, but this course will stress the first one. The idea of the course is to see if we can solve the *two times* problem. Like Eddington’s two tables, one a microscopic swarm of particles composed mostly of air, the other a solid, rigid body – we also know of two times. One is *manifest time*, the flowing time we live by as we navigate through life, and the other is *physical time*, the flowless time(s) physics develops as it describes the world. Much of the structure etched into manifest time is central to what makes a human life recognizably human. Arguably all this structure is lost in physical time. Hence the two times problem: the huge explanatory gap between the two times. The hope is that by trying to solve the problem, we will better understand time as well as our place in the universe.

The course will loosely follow the book I am currently writing on the topic. After the introduction, we’ll begin with a look at time in physics and the various philosophical controversies there. Then we’ll turn to some surprising senses in which time is still quite different from space even in modern physics. We’ll then try to use some of these differences in explaining why creatures like us, embedded in a world like this, might employ a conception of time such as manifest time. This topic will take us into the cognitive science, psychology and biology of time, among other areas.

I believe that there are many open and unexplored issues here, so there should be plenty of promising topics on which the student can write. The course should also be accessible to those without a strong scientific background. Although time will kill you, it doesn't follow that this course will.

Coordinates HSS 7077, Thurs 3-550
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Background If you've never done anything in philosophy of time before and want some accessible extra reading, I suggest Barry Dainton's *Time and Space* and Paul Horwich's *Asymmetries in Time*. Also, check out the entries on time and related matters on the SEP and

some of the articles in my *Oxford Handbook on Philosophy of Time*.

Tentative Schedule We'll discuss what topics we prefer to do in the first session.

1. Introduction: Manifest Time

Callender "Chapter 1: The 'Two Times' Problem"

Mellor, D.H. "The Time of Our Lives" <http://www.dspace.cam.ac.uk/bitstream/1810/753/1/TimeLives.html>

2. Time and Relativity

Callender "Chapter 2: Lost Time"

Putnam, "Putnam, H. (1967). Time and Physical Geometry, *JPhil* 64 (1967): 240–247.

3. Time and the Quantum

Callender "Chapter 3: Intimations of Quantum Time"

Excerpts from Butterfield and Earman

Optional extras: On Time in Quantum Physics, Jeremy Butterfield; Wuthrich on presentism in quantum gravity

4. The Difference Between Time and Space

Callender "Chapter 4: The Differences Between Time and Space"

Callender "Chapter 5: Looking at the World Sideways"

Skow, "The Difference between Space and Time," *Noûs* 2007: 227.

Optional extras: Taylor, Richard. "Spatial and Temporal Analogies and the Concept of Identity", *The Journal of Philosophy* 1955, pp. 599-612.

Weinstein, "Many Times," <http://fqxi.org/community/forum/category/10>

5. The Common Now

Callender, "Chapter 6: The Common Now"

Zimmerman, "The Privileged Present: Defending an 'A-theory' of Time",

2008. <http://philpapers.org/rec/ZIMTPP>

Optional extras: Eagleman DM (2008). Human time perception and its illusions. *Current Opinion in Neurobiology*. 18(2): 131-6.

Holcombe (forthcoming). The temporal organisation of perception. In [The Oxford Handbook of Perceptual Organisation](#). Wagemans, J., ed.

6. Felt Duration

Geoffrey Lee, "Subjective Duration"

Ian Philipps, Attention to the passage of time *Philosophical Perspectives* 26(1), 2012.

7. The Specious Present

Phillips The temporal structure of experience in D. Lloyd and V. Arstila (eds.) *Subjective Time: the Philosophy, Psychology, and Neuroscience of Temporality* MIT Press (in press).

Geoffrey Lee, Temporal Experience and the Temporal Structure of Experience"

Optional extras: Grush, Ismael, Kelly

8. The Flow of Time

Callender, "Chapter 7: Stitching the World Together"

Ismael, Time and the Open Future

Hartle, The Physics of Now

Optional extras; The Representation of Time in Agency Holly Andersen Prosser, 'The Passage of Time', in Heather Dyke and Adrian Bardon (eds.), *A Companion to the Philosophy of Time*. Oxford: Wiley-Blackwell, 2013: 315-327.

9. The Temporal Value Asymmetry

Callender, "Chapter 8: Thank Goodness that Argument is Over"

Dyke and Maclaurin, 'The Evolutionary Origins of Tensed Language and Belief' *Biology and Philosophy* 26 (2011): 401-418.

Caruso, Gilbert, Wilson, "A Wrinkle in Time: Asymmetric Valuation of Past and Future Events" *Psychological Science*, 2008.

Optional extras: more Caruso, Brink, Bartels...

10. The Future of Philosophy of Time

Sider, "Quantifiers and Temporal Ontology" *Mind*, 2006

Callender "Moving Past the ABC's of Time"