



# UNIVERSITÀ DI PARMA

DIPARTIMENTO DI DISCIPLINE  
UMANISTICHE, SOCIALI E DELLE  
IMPRESE CULTURALI

RESEARCH DOCTORATE  
IN PHILOLOGICAL-LITERARY, HISTORICAL-PHILOSOPHICAL AND ARTISTIC SCIENCES

## DISCIPLINARY COURSE

TITLE: Time travel and backward causation

INSTRUCTOR: Alessandro Torza

CFU: 2

SHORT DESCRIPTION: What do Michael J. Fox, Arnold Schwarzenegger and Ezra Miller have in common, besides being actors? They all played characters who traveled in time: Marty McFly, Terminator, and the Flash, respectively.

It is indeed quite common for fictional characters to time-travel, typically in order to change the course of events, and either prevent or enact some villainous plan. But what is time travel, and is it logically possible? If it is, are time travelers able to change the course of past events? Does past-changing time travel require the postulation of extra time dimensions? Does quantum mechanics provide fertile ground for past-changing events?

These and other questions will be addressed in this graduate course on the metaphysics of time travel and backward causation.

Time: 16-18.00

Place: TBA

### CALENDAR:

- |        |  |
|--------|--|
| May 15 | The possibility of time travel.<br>Reading: Lewis, 1976.                                     |
| May 17 | The possibility of changing the past.<br>Reading: van Inwagen, 2010.                         |
| May 19 | The impossibility of changing the past.<br>Reading: Baron, 2017.                             |
| May 22 | Time travel and temporal counterparts.<br>Reading: Loss, 2015.                               |
| May 24 | Against past-changing time-traveling counterparts.<br>Reading: Andreoletti & Torrenco, 2019. |



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May 26      Quantum mechanics and backward causation

Reading: Price, 1984.

## READINGS:

Andreoletti, Giacomo & Torrenco, Giuliano (2019). Time Travel and the Immutability of the Past within B-Theoretical Models. *Philosophia* 47 (4):1011-1021.

Baron, Sam (2017). Back to the Unchanging Past. *Pacific Philosophical Quarterly* 98 (1):129-147.

Lewis, David K. (1976). The Paradoxes of Time Travel. *American Philosophical Quarterly* 13 (2):145-152.

Loss, Roberto (2015). How to Change the Past in One-Dimensional Time. *Pacific Philosophical Quarterly* 96 (1):1-11.

Price, H. (1984). The philosophy and physics of affecting the past. *Synthese*, 61(3), 299–323.

van Inwagen, Peter (2010). Changing the Past. *Oxford Studies in Metaphysics* 5:3-40.