

# Tutorial in Logical Reasoning for Sciences

Spring 2019

20 hours

Instructors Dino Gerardi and Daniele Pennesi

Contacts: [dino.gerardi@carloalberto.org](mailto:dino.gerardi@carloalberto.org), [daniele.pennesi@unito.it](mailto:daniele.pennesi@unito.it)

## Course description

This course first presents an introduction to logic and formal reasoning, so as to acquaint the students with some of the more common techniques of formal proof and argument. Next, the course reviews some of the basic ideas of abstract set theory used in every application of mathematics.

## Topics

- Principles of inference (connectives, inference rules, symbolic languages)
- Proof techniques - Constructive, by contradiction, by contrapositive, by induction.
- Introduction to set theory (sets, relations, functions)

## Textbook (optional)

*Introduction to Logic*, by Patrick Suppes (Van Nostrand, 1957)

*Set theory and logic*, by Robert Stole (Dover, 1979)