

Topology 2

Andrea D'Agnolo¹

¹ *Università di Padova*
Dipartimento di Matematica
Email: dagnolo@math.unipd.it

Timetable:

for information regarding the timetable of the classes please contact prof. Andrea D'Agnolo (dagnolo@math.unipd.it) before October 15th.

Course requirements:

Examination and grading:

SSD: MAT/03-MAT/05

Aim: see <http://tiny.cc/topologia>

Course contents: Algebraic Topology is usually approached via the study of the fundamental group and of homology, defined using chain complexes, whereas, here, the accent is put on the language of categories and sheaves, with particular attention to locally constant sheaves.

Sheaves on topological spaces were invented by Jean Leray as a tool to deduce global properties from local ones. This tool turned out to be extremely powerful, and applies to many areas of Mathematics, from Algebraic Geometry to Quantum Field Theory.

On a topological space, the functor associating to a sheaf the space of its global sections is left exact, but not right exact in general. The derived functors are cohomology groups that encode the obstructions to pass from local to global. The cohomology groups of the constant sheaf are topological (and even homotopical) invariants of the space, and we shall explain how to calculate them in various situations.