

MATH-693

Sheaf cohomology

Patakfalvi Zsolt, Pieropan Marta, Zdanowicz Maciej Emilian

Cursus	Sem.	Type
Mathematics		Obl.

Language of teaching	English
Credits	4
Session	
Exam	Oral
Workload	120h
Hours	56
Courses	14
Exercises	28
TP	14
Number of positions	15

Remark

Next time: Spring 2018

Summary

This is a course on the third chapter of the book “Hartshorne: Algebraic geometry” treating the foundations of the cohomology theory of sheaves.

Content

This is a course on the third chapter of the book “Hartshorne: algebraic geometry” treating the foundations of the cohomology theory of sheaves. The special feature of algebraic geometry is that students have to learn it twice. First, using the “traditional” or “classical” point of view, and then using the more general theory of schemes. So, this is a course for those who have already learned the former and want to learn now the latter, and furthermore they already took the previous part of this series of courses, called “Scheme theory”.

“Hartshorne: Algebraic Geometry” is the standard foundational graduate textbook for scheme theory. It is famous about the particular approach that the big chunk of the material is in the exercises.

The goal is to read the material at home, and present all the exercises during the meetings. Each student presents one or more exercises per week. This is a course only for those who have taken a course which is at least equivalent to the algebraic geometry masters course here at EPFL.

Warning: the course is hard, as the book and the subject is famously hard. Significant work is needed to be put in at home.

Keywords

algebraic geometry, cohomology theory of sheaves

Learning Prerequisites**Required courses**

Algebraic geometry (masters course), Scheme theory (PhD course)

Learning Outcomes

By the end of the course, the student must be able to:

- know the basics of the cohomology theory of sheaves

Resources**Bibliography**

Hartshorne: Algebraic Geometry