Summary
This course provides an overview of material discoveries, through the major chapters of modern solid state physics. The aim is to discuss the synthesis, characterization and applications of new compounds with an emphasis on their electrical transport properties.

Learning Prerequisites
Required courses
Introduction to solid state physics

Recommended courses
Solid state physics II

Important concepts to start the course
structure cristalline, strucure de bande, magnétisme de base, transport électronique

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

• Optimize
• Predict
• Expound
• Interpret
• Describe
• Critique

Teaching methods
ex cathedra
laboratory visit
exercise sessions with student presentations

Expected student activities
3 hours per week

Assessment methods
Oral exam based on approx. 40% of the scientific papers treated during the exercise sessions in the semester

**Supervision**

- Office hours: Yes
- Assistants: Yes
- Forum: No

**Resources**

- **Bibliography**
  The necessary material is proposed during the lectures and the exercise sessions

- **Notes/Handbook**
  No textbook, just handouts of the lectures

**Moodle Link**