

Rings and modules

Anelli e Moduli

For students of the Master's degree in Mathematics (Laurea Magistrale),
students of the Master Mundus ALGANT program,
student of the bachelor's degree in Mathematics (Laurea triennale)

Spring semester/ secondo semestre:

Total number of hours: 48 (6 credits).

Examination: written/oral.

Description of the course

This is a second course in Modules over arbitrary Rings and in Abelian Categories. A particular emphasis will be to homological algebra and homological dimension.

Program

Additive and Abelian categories
Functor categories.
Limits and colimits.
Adjoint functors.
Morita equivalences
Chain complexes, homotopies.
Projective and injective resolutions.
Left and right derived functors.
Tor and flatness.
Ext and extensions.
Homological dimensions.

References

- B. B. Stenström, Rings of quotients, Grundlehren der Math., 217, Springer-Verlag, (1975).
- C.A. Weibel, An Introduction to Homological Algebra, Cambridge studies in Ad. Math., 38 (1994).
- J. Rotman, An introduction to Homological Algebra, Second edition. Universitext. Springer, New York, 2009.