COMMUTATIVE ALGEBRA

Contact

Contact data:.

- Josep Alvarez Montaner
- Departament de Matemàtiques (ETSEIB 3rd floor)
- Josep.Alvarez@upc.edu

Schedule: Mondays and Wednesdays from 14:00 to 16:00.
Room: 101 (FME).

Contents

3: Affine algebraic varieties.

3.1.- Algebraic equations and affine algebraic sets.
3.2.- Finitely generated algebras and algebraic varieties.
3.3.- Zariski topology.
3.4.- Spectrum of a ring.

4: Derived Functors .

4.1.- Chain complexes. Homology and cohomology.
4.2.- Resolutions.
4.3.- Derived functors.
4.4.- Examples .

5: Grade Theory .

5.1.- Regular sequences. Depth..
5.2.- Cohen-Macaulay rings .
5.3.- Gorenstein rings.
5.4.- Regular rings.

Bibliography

Basic references

- [**AM**] Atiyah, M. F., Macdonald I. G.; *Introduction to commutative algebra.* Addison-Wesley Publishing Co., Reading, Mass.-London-Don Mills, Ont., 1969.
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- [**Rot**] Rotman, J.; *An introduction to homological algebra.* Pure and Applied Math., 85. Academic Press, 1979.

Complementary references

- [**BH**] Bruns, W., Herzog, J.; *Cohen-Macaulay rings.* Cambridge Studies in Advanced Mathematics, 39. Cambridge University Press, Cambridge, 1993.
- [**Eis**] Eisenbud, D.; *Commutative algebra with a view towards Algebraic Geometry.* Graduate Texts in Mathematics, 150. Springer-Verlag, New York-Berlin, 1995.
- [**GP**] Greuel, G. M., Pfister, G.; *A Singular introduction to commutative algebra.* Springer-Verlag, Berlin, 2002.
- [**Kun**] Kunz, E.; *Introduction to commutative algebra and algebraic geometry.* Birkhaüser Boston, Inc., Boston, MA, 1985.
- [**Lan**] Lang, S.; *Algebra.* Revised third edition. Graduate Texts in Mathematics, 211. Springer-Verlag, New York, 2002.
- [**Mat**] Matsumura, H.; *Commutative ring theory.* Cambridge Studies in Advanced Mathematics, 8. Cambridge University Press, Cambridge, 1989.