FB Mathematik
Thomas Markwig

SS 2005

Seminar on

Commutative Algebra

General Reading			
0	Homological Algebra	[E, A 2.2 & A 3.1-11]	all
Regular Rings, Graded Rings and Modules			
1	Regular Rings	[E] Sätze 3.11b, 10.6-9 & 10.14-15	Klaus Huthmacher
2	Graded Modules and Rings	[E, 1.5, 1.9-10, A 3.2],[Ma]	Markus Hochstetter
Regular Sequences and the Koszul Complex			
3	Koszul Complexes	[E, 17.1-4] 423-440	Silke Spang
Depth, Codimension, and Cohen-Macaulay Rings			
4	Depth	[E, 18.1] 451-455	Lars Allermann
5	Cohen-Macaulay Rings	[E, 18.2] 455-460	Mathias Altenhöfer
6	Primeness, Flatness and Depth	[E, 18.3-4] 461-466	Eckehard Hollborn
Homological Theory of Regular Local Rings			
7	Projective Dimension	[E, 19.1-2] 473-478	Marina Franz
8	Auslander-Buchsbaum Formula	[E, 19.2-3] 478 (C. 19.8)-483	Thomas Trenner
9	Factoriality of Regular Local Rings	[E, 19.3-4] 483 (C. 19.14)-487	Tanja Berger
Free Resolutions and Fitting Invariants			
10	Fitting Ideals	[E, 20.1-2] 489-496	Zaenal Aripin
11	Hilbert-Burch Theorem	[E, 20.3-4] 496-503	Michael Weber
12	Castelnuovo-Mumford Regularity	[E, 20.4-5] 503-510	Christian Dingler
Duality, Canonical Modules, and Gorenstein Rings			
13	Duality	[E, 21.1] 520-525	Andreas Gathmann
14	Gorenstein Rings	[E, 21.2-3] 525-529	Lesya Bodnarchuk
15	Maximal Cohen-Macaulay Modules	[E, 21.4-6] 529-535	Markus Barthlen
16	Duality for MCM	[E, 21.7-9] 536-538	Eva-Maria Zimmermann
17	Linkage	[E, 21.10-11] 539-546	

References

[E] **Eisenbud**: Commutative Algebra

[GM] **Gelfand, Manin**: Methods of Homological Algebra

[HS] **Hilton, Stammbach**: A Course in Homological Algebra

[M] **Matsumura**: Commutative Ring Theory

[Ma] **Markwig**: Graduiertes Nakayama Lemma