

# MATH 696 ADVANCED TOPICS IN HOMOLOGICAL ASPECTS OF COMMUTATIVE RINGS

## 1. BOOK

M. S. Osborne, Basic Homological Algebra, Graduate Texts in Mathematics, Vol. 196, Springer-Verlag, Berlin-Heidelberg-New York, 2000.

## 2. RESEARCH PAPERS

1. D. Costa, Parameterizing families of non-Noetherian rings. Comm. Algebra 22 (1994), no. 10, 3997--4011.
2. D. Costa and S. Kabbaj, Classes of D+M rings defined by homological conditions. Comm. Algebra 24 (1996), no. 3, 891--906.
3. D. Dobbs, S. Kabbaj and N. Mahdou, n-coherent rings and modules. Lecture Notes in Pure and Applied Mathematics Dekker 185 (1997) 269-282.
4. D. Dobbs, S. Kabbaj, N. Mahdou and Sobrarni, When is a D + M an (n, d)-ring? Lecture Notes in Pure and Applied Mathematics Dekker 205 (1999) 257-270.

## 3. SYLLABUS

WEEK	MATERIAL
1	Semi-simple rings. Von Neumann regular rings
2	Hereditary and Dedekind rings. Semi-hereditary and Prüfer rings
3	Ext and Tor
4	Homological dimensions
5	Hilbert's Syzygy theorem
6	Parameterizing families of non-Noetherian rings (1)
7	Parameterizing families of non-Noetherian rings (2)
8	Parameterizing families of non-Noetherian rings (3)
9	Parameterizing families of non-Noetherian rings (4)
10	Classes of D+M rings defined by homological conditions
11	n-coherent rings and modules (1)
12	n-coherent rings and modules (2)
13	D + M (n, d)-rings (1)
14	D + M (n, d)-rings (2)

## 4. GRADING POLICY

More than 20 oral presentations	100
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