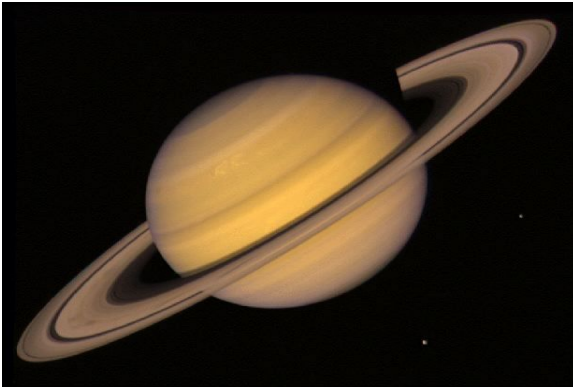


Pries, Spring 2015, Information and Coding Theory: Tentative Syllabus



Week	Starts	Topics
1	1/21	<b>Introduction to information theory and coding theory</b>
2	1/26	Kraft and McMillan inequalities, ISBN codes
3	2/2	Huffman encoding, noiseless coding theorem
4	2/6	Entropy
5	2/16	Hamming distance, nearest neighbor decoding, error-correcting capabilities
6	2/23	Vector spaces and lattices
7	3/2	Linear codes: generator and parity check matrices, Singleton bound
8	3/9	Bounds on codes (sphere-packing, Gilbert-Varshamov)
		spring break
9	3/23	Finite fields
10	3/30	Reed-Solomon codes
11	4/6	Cyclic and BCH codes
12	4/13	Concatenated codes, Low density parity check codes
13	4/20	Lattice Based Cryptography
14	4/27	Lattice Based Cryptography
15	5/4	Project Presentations

**Important Dates:**

Week 5, Midterm 1, Monday 2/16

Week 8, Midterm 2, Friday 3/27

Week 13, Midterm 3, Friday 5/01

Written Project due, Thursday 5/14, noon.

There is no final for this course.

**Textbooks:**

Steven Roman: Introduction to Coding and Information Theory