



**PURE MATHEMATICS 419  
(STATISTICS 419)  
"INFORMATION THEORY  
AND ERROR CONTROL CODES"**

**Calendar Description:** H(3-0)

Information sources, entropy, channel capacity, development of Shannon's theorems, development of a variety of codes including error correcting and detecting codes.

**Prerequisite:** Mathematics 311 and Mathematics 321 or any Statistics course, or consent of the Division.

*Syllabus*

**Topics**

Brief introduction to information theory, source coding including the Huffman Method, and Shannon's theorems.

Error detection methods. Error correcting codes -- primarily linear codes including Hamming codes, Golay codes, Reed-Muller codes, cyclic codes, as well as convolutional codes. Topics discussed will include coding and decoding, dual codes, and perfect codes. (The particular types of codes covered may vary.)

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