UNIVERSITY OF CALGARY

FACULTY OF SCIENCE
Department of Mathematics and Statistics

STATISTICS 419
(PURE MATHEMATICS 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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