

Professors: Dr. Wayne Iba and Dr. Kim Kihlstrom

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Goals: (1) Understand the fundamental concepts of information and coding theory
(2) Understand the development and usage of cryptography, including the underlying mathematical concepts

Content: This course examines information theory including Shannon’s coding theories, entropy, channels and channel capacity, error detecting codes, error correcting codes including Hamming codes, variable length codes including Huffman codes, and compression algorithms. We will also study cryptography including substitution systems, rotor systems such as Enigma, secret key systems such as the Data Encryption Standard (DES), public key systems such as RSA, key management, authentication and digital signatures.

Class Sessions: Class sessions will include presentation of principles and ideas and discussion.

Assignments: Homework assignments will be due every one to two weeks.

Grades: The percentages of grading will be as follows:

- Class Participation: 25%
- Homework assignments: 50%
- Final Exam: 25%

Honesty: Working together on assignments is encouraged. However, copying another student’s assignment (or portion of an assignment) is not allowed and will result in an F for the assignment. If you work together, you must include a comment indicating with whom you worked and on which part or your assignment. Repeated or major violations will result in an F for the course.

To plagiarize is to present someone else's work—his or her words, line of thought, or organizational structure—as your own. This occurs when sources are not cited properly, or when permission is not obtained from the original author to use his or her work. Another person's "work" can take many forms: printed or electronic copies of computer programs, musical compositions, drawings, paintings, oral presentations, papers, essays, articles or chapters, statistical data, tables or figures, etc. In short, if any information that can be considered the work of another is used without acknowledging the original source properly, this is plagiarism.

Please familiarize yourself with the entire Westmont College Plagiarism Policy. This document defines different levels of plagiarism and the penalties for each. It also contains very helpful information on strategies for avoiding plagiarism. It cannot be overemphasized that plagiarism is an insidious and disruptive form of academic dishonesty. It violates relationships with known classmates and professors, and it violates the legal rights of people you may never meet.