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	Office hours: Tue. 12:30pm–1:30pm
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COURSE WEB PAGE: http://www.math.uwaterloo.ca/~djao/co331/
This page will include office hours, course handouts (including assignments and assignment solutions), and brief summaries of lectures.

TEXT: We will closely follow the book *An Introduction to Error Correcting Codes with Applications*, by S. A. Vanstone and P. C. van Oorschot. The book is available from the UW Bookstore. Copies of the book are also available on 3-hour reserve at the Davis Centre and St. Jerome's libraries. The book is a good source of additional examples and problems.

PREREQUISITES: Math 135 and Math 235.

COURSE OUTLINE: We will cover some algebraic methods for devising error-correcting codes. These codes are used, for example, in satellite broadcasts, CD players, and memory chips. The mathematical ingredients for the course include linear algebra, groups, rings, ideals, and finite fields. The necessary abstract algebra will be introduced as needed.

The following topics from the text will be covered (roughly in this order):

- Chapter 1 (Introduction and Fundamentals)
- Sections 2.1–2.5 (Finite Fields)
- Sections 3.1–3.6 (Linear codes)
- Section 4.3 (The binary Golay code)
- Sections 5.1–5.8 (Cyclic codes)
- Sections 6.1, 6.2, 6.4 (BCH codes)
- Time permitting: Sections 7.1–7.5 (Reed-Solomon codes, erasures, interleaving)

EVALUATION

Assignments:	30%
Midterm exam:	20%
Final exam:	50%

POLICIES

Academic Integrity: In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility. Check `http://www.uwaterloo.ca/academicintegrity/` for more information.

Grievance: A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70, Student Petitions and Grievances, Section 4, `http://www.adm.uwaterloo.ca/infosec/Policies/policy70.htm`. When in doubt please be certain to contact the department's administrative assistant who will provide further assistance.

Discipline: A student is expected to know what constitutes academic integrity to avoid committing academic offenses and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offense, or who needs help in learning how to avoid offenses (e.g., plagiarism, cheating) or about "rules" for group work/collaboration should seek guidance from the course professor, academic advisor, or the undergraduate associate dean. For information on categories of offenses and types of penalties, students should refer to Policy 71, Student Discipline, `http://www.adm.uwaterloo.ca/infosec/Policies/policy71.htm`. For typical penalties check Guidelines for the Assessment of Penalties, `http://www.adm.uwaterloo.ca/infosec/guidelines/penaltyguidelines.htm`.

Appeals: A decision made or penalty imposed under Policy 70, Student Petitions and Grievances (other than a petition) or Policy 71, Student Discipline may be appealed if there is a ground. A student who believes he/she has a ground for an appeal should refer to Policy 72, Student Appeals, `http://www.adm.uwaterloo.ca/infosec/Policies/policy72.htm`.

Note for students with disabilities: The Office for Persons with Disabilities (OPD), located in Needles Hall, Room 1132, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with the OPD at the beginning of each academic term.