

University of Lethbridge
Department of Mathematics and Computer Science

CPSC 3620 – Data Structures and Algorithms
Course Outline – Spring 2011

LECTURES: MWF 9:00 – 9:50 **ROOM:** D631

INSTRUCTOR: Robert Benkoczi (office C556)

OFFICE HOURS: W F @ 12:00–12:50,
by appointment,
or drop in anytime I am in the office.

TEXT: *Introduction to the Design and Analysis of Algorithms*
by Levitin, 2nd Ed.

GRADING SCHEME:	Assignments (4)	20%
	Project	15%
	Midterm (Friday, March 4)	20%
	Final exam (Tuesday, April 26, 9–12)	45%

GRADE DISTRIBUTION: This information is provided as a guideline only and may be revised in this offering.

	A+	A	A-	B+	B	B-	C+	C	C-	D+	D	F
Minimum %	95	85	80	86	73	70	76	63	60	55	50	0

SCHEDULE: (as time permits):

- Review of O notation.
- Analysis of recursive and non-recursive algorithms.
- Brute force algorithms.
- Divide and conquer.
- Decrease and conquer (insertion sort, DFS, BFS).
- Transform and conquer (Gaussian elimination, balanced search trees, binary exponentiation, heaps and heapsort).
- Space-time tradeoff (string matching, hashing, B-Trees).
- Dynamic programming.
- Greedy algorithms.
- Characterizing problems by difficulty (lower bounds on time complexity, P vs. NP-complete problems).
- Coping with difficult problems (backtracking or approximation algorithms).

COMMENTS:

- Math or algorithm design questions sent to me by e-mail will, most probably, remain unanswered. Please see me in person.
- The midterm must be written at the scheduled time; no provision is made for make-up exams and assignments due dates will not be extended, except for medical reasons or emergencies¹. Missed exams receive a grade of zero.
- Requests for remarking the midterm or the assignments are accepted only in writing. A form is provided on the course web page for this purpose. Note that if your work is remarked, your grade may go up, down, or remain unchanged.
- Plagiarism can lead to severe penalties – consult the calendar.
- Don't be shy in class:
Participate by answering questions and feel free to interrupt me during lecture to ask questions.
- Details about the project are on the course web page.

LINKS:

- Course webpage: <http://www.cs.uleth.ca/~benkoczi/3620>

¹According to the calendar, final exam date change requests are handled by Student Services (SU 060)