

University of Lethbridge
Department of Mathematics and Computer Science

Computer Science 4625 – Design and Analysis of Advanced Algorithms
Course Outline – Spring 2016

LECTURES: Tu Thr 12:15 – 13:30 **ROOM:** PE020

INSTRUCTORS: Robert Benkoczi (office C556)
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TEXTS: *Algorithm Design*, by Kleinberg and Tardos.
Introduction to Parallel Computing, by Grama, Gupta, Karypis, and Kumar.

GRADING	Midterm	20%
SCHEME:	Assignments (approx 6)	30%
	Final exam	50%

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

A+	95	B+	77	C+	67	D+	55
A	85	B	73	C	63	D	50
A-	80	B-	70	C-	60	F	< 50

SCHEDULE:

(as time permits):

- 1) Network flow and bipartite matching problems.
- 2) NP-complete problems. PSPACE-complete problems.
- 3) Extending the limits of tractability: problems on tree graphs, examples of simple approximation algorithms, local search for optimization problems.
- 4) Parallel algorithms for dense matrix algorithms.
- 5) Parallel algorithms for sorting.
- 6) Parallel graph algorithms.
- 7) Parallel dynamic programming algorithms.

COMMENTS:

- Work must be submitted at the scheduled time; no provision is made for make-up midterm or late assignments, except for medical reasons or emergencies. Missed tests and assignments receive 0 points.
- Requests for remarking tests and assignments are accepted only in writing *no later than one week from the date your graded work was returned*. On the request: identify the assignment or midterm, briefly explain why you believe the mark is incorrect. You can send your request by e-mail. Note that if your work is remarked, your grade may go up, down, or remain unchanged.
- Copying is strictly prohibited. Plagiarism can lead to severe penalties – consult the calendar.

LINKS

- Moodle: <http://moodle.uleth.ca/>
- Instructor's page including office hours: <http://www.cs.uleth.ca/~benkoczi/>