University of Lethbridge
Department of Mathematics and Computer Science

Computer Science 4850/5850 – Algorithms in OR
Course Outline – Spring 2010

LECTURES:	TR 15:05 – 16:20 a.m.	**ROOM:** B775
INSTRUCTOR:	Robert Benkoczi (office D520) `robert.benkoczi@uleth.ca`	
TEXT: (optional)	*Operations Research* by Katta Murty	

GRADING SCHEME:

4 assignments	20%
1 presentation	10%
1 project	20%
Final exam (take home)	50%

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 %	92	88	85	82	77	73	68	64	60	55	50	0

SCHEDULE: (as time permits):

1) Modeling linear programs (LP)
2) Review of algebra and geometry
3) Duality and optimality in LP
4) Duality in convex programs
5) Algorithms for LP (primal-dual, transportation, simplex)
6) Algorithms for convex programs
7) Discrete optimization (integer programming, branch and bound algorithms, cutting plane algorithms)
8) Other topics depending on interests.

COMMENTS:

- PROJECT:

  Requires you to implement and experiment with one of the algorithms covered in class, OR to implement visualization tools to illustrate certain notions or algorithms, OR to write an extended report on a paper. The work on projects is reserved for the last 3 weeks of classes.

- Take home exam:

  As per calendar regulations, take home exams are due before the end of the examination period and no earlier than the 4-th day of examinations.

  Length of time to prepare your answers: either 24 or 48 hours (TBD later)

- Assignments:

  Will contain a mix of programming and problems to be solved by hand on paper. For the programming part, we will use a free replacement of Matlab called *Octave*.

- Presentation:

  Several papers will be made available for extra reading during the class. You will be required to choose one and to present it in class. The schedule for presentations will be determined later and will be made available on the course web page.

USEFUL LINKS

- Course web page: `http://www.cs.uleth.ca/~benkoczi/OR`