

Business Analytics & Information Technology
COURSE NUMBER: 33:136:486
COURSE TITLE: Optimization Modeling

COURSE MATERIALS

Recommended Textbook: *AMPL: A modeling language for mathematical programming.*
 Downloadable in electronic form (free), from: <http://www.ampl.com>

GRADING

40% Homework, 30% Midterm, 30% Final. You are allowed **not to submit homework on time, only twice** (no excuses necessary). Beyond this point late submissions will not be accepted (regardless the excuse).

Tentative Schedule

September 08, 2015	Introduction to optimization modeling, modeling languages, and tools. AMPL model and analysis of the problem. Basics of AMPL modeling. AMPL interfaces.
September 14, 2015	Diet and blending problems. Using arrays and sets.
September 21, 2015	Transportation and assignment problems. Bounds and data consistency rules. Indexing expressions.
September 28, 2015	Analysis of general input---output models. Duality and its economic interpretation. AMPL tools to view primal and dual solutions.
October 05, 2015	Building larger models: multiperiod production, multicommodity transportation, production and transportation, etc.
October 12, 2015	Parameters, sets, indexing, and building expressions in AMPL. The components of a linear program.
October 19, 2015	Transshipment problems and network linear programs.
October 26, 2015 *** 8:40--11:40 AM	Midterm
November 02, 2015	Integer programming. Modeling with binary variables.
November 09, 2015	Building more complex models. AMPL tools for modeling and data handling.
November 16, 2015	Piecewise linear programs.
November 23, 2015	Nonlinear programs and solvers working with AMPL. Linearization techniques.
November 30, 2015	Complementarity problems.
December 07, 2015	Multistage problems and preparations for the final.
December 15, 2015 *** 8:00--11:00 AM	Final exam