OR3 Approximate Syllabus

Monday 18 June

Morning: Optimality conditions for constrained problems: Karush-Kuhn-Tucker (KKT) conditions (will be seen as special case for mixed complementarity problems)

Afternoon: Definition of (mixed) complementarity problems and variational inequalities, producer duopoly, GAMS exercises

Tuesday 19 June

Morning: Wardrop traffic equilibrium, spatial price equilibrium, PIES energy market equilibrium, small natural gas market equilibrium

Afternoon: GAMS exercise from Chapter 1 of Gabriel book (Note: may start Integer Programming if ahead of schedule)

Wednesday 20 June

Morning: Integer Programming: Geometric aspects of IPs, Examples of IPs

Afternoon: Logic problems: Either-or, If-then, piecewise approximations to nonlinear terms, Linearizing products of binary variables

Thursday 21 June

Morning: Solving IPs using branch-and-bound, Solving 0-1 IPs using implicit enumeration, HW/In-Class Problems: Formulating IPs, IPs applied to clean energy case study

Afternoon: Project Discussions, Discussion of possible projects, Student preparation of presentation

Friday 22 June

Morning: Morning: Project Proposal Presentations, Students present their proposed projects to the class (10-15 minutes) per group

Late Morning/Early Afternoon: Exam Review: Format, Review problems, etc.

Exam: tentatively 25 June, 0900-1300