# Operations Research, Spring 2014
# Case assignment 4

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## Submission

The deadline of this homework is **_1pm, April 28, 2014_**. Please put a hard copy of the work into the instructor's mailbox on the first floor of the Management Building II by the due time. Submissions within 1pm to 2pm will get one letter grade lower as a penalty. Submissions after 2pm will not be accepted. Each team should submit just one report. The report should contain **_at most six_** A4 pages (including everything). Double-sided printing is certainly encouraged.

## The case and tasks

Please go to CEIBA and find Case 9.2 (in "Related Files" under the section "Assignments") of the text-book. Read it thoroughly and then answer Problems (a) to (d). You do not need to answer Problem (e). When formulating models, explicitly write down any assumption you make before you start formulating your model. For Problems that ask you to solve a model, you are suggested to use AMPL instead of MS Excel solver, as AMPL (with the solver CPLEX) does much better when solving network flow problems. You do not need to print out your AMPL programs to show how you solve a model. What really matter are the definitions, formulations, solutions, and suggestions.

Each of Problems (b) to (d) should be formulated as a network flow problem. You should then solve the model and then give suggestions.

We know that for network flow problems, formulating an IP and solve its LP relaxation results in integer solutions. Therefore, please try to see this by yourself: Formulate your problem as LPs, solve them, and see whether you get integer solutions or not. Of course you do not need to show this in your report.

## Grading

Case assignments, including this one, are graded with letter grades. The correctness and completeness of your answers decides whether you get A, B, C, or D. The organization and format of your report then decides whether you get $X+$, $X$, or $X-$, where $X \in \{A, B, C, D\}$ is the grade you obtain from the correctness and completeness.

## Format

For case assignments, we put a higher standard on the how formal your report is. Some general guidelines are also posted online. Please do not forget that you have a team to work on one problem: Discuss together for the whole problem instead of work individually! Then try your best to write a formal and complete report.