



SR	Day 1	Day 2	Day 3	Day 4	Day 5
09:30-10:30	Introduction to CGE	Micro Economics & Calibration	Shoven-Whalley Model	Balancing a SAM	Simulation Exercises
10:30-11:00	coffee break				
11:00-12:30	Introduction to Micro Economics	2 person x 2 commodity Trade Model	Tax Simulations	Reading data via Excel	Introduction of Government
12:30-14:00	lunch break				
14:00-15:30	Introduction to GAMS - 1	Sensitivity Analysis and Simulations	Writing output to Files	Aggregation of Data in GAMS	Simulation Exercises
15:30-16:00	coffee break				
16:00-17:30	Introduction to GAMS - 2	N person x K commodity Trade Model	Introduction to Social Accounting Matrix	Model with Production and Input Output Tables	Concluding Remarks



HKr	Day 1	Day 2	Day 3	Day 4	Day 5
09:30-10:30	Introduction to CGE: <ul style="list-style-type: none"> - Economic Modelling - What is CGE modelling? <ul style="list-style-type: none"> - <i>Input-Output</i> modelling - <i>General Equilibrium Theory</i> - <i>Mathematical Programming</i> 	Model: CGE-CRS Exercise: CGE-CRS.gms	Applying CGE modelling to Energy Economics <ul style="list-style-type: none"> - Integration with Energy Systems models. - Scenario-based analysis 	Exercise: The Economics of Climate Change	Introduction to the Social Accounting Matrix <ul style="list-style-type: none"> - Data Sources: Statistical Offices, GTAP etc.
10:30-11:00	coffee break				
11:00-12:30	Introduction to Micro Economic Theory: <ul style="list-style-type: none"> - <i>Consumer Theory</i> - <i>Producer Theory</i> - Equilibrium: <i>partial</i> vs. <i>general</i> - Equilibrium vs. Social Accounting Matrix (SAM): Calibration - Computation of an equilibrium: <ul style="list-style-type: none"> - System of Equations - <i>(Non-)Linear Programming</i> (NLP) - <i>Mixed Complementarity Problem</i> (MCP) 	Model: CGE-TAX <ul style="list-style-type: none"> - Introduction of Government Exercise: CGE-TAX.gms <ul style="list-style-type: none"> - Tax simulations 	Exercise: Energy Economics	Applying CGE modelling to Land Use	Organising the data into a Social Accounting Matrix <ul style="list-style-type: none"> - Methods - Exercise
12:30-14:00	lunch break				
14:00-15:30	Introduction to GAMS - 1: <ul style="list-style-type: none"> - Alternatives to GAMS: <i>GemPACK</i>, <i>Matlab/Octave/SciLab</i>, <i>Python/R</i>, <i>C++</i> - GAMS syntax: SETS, PARAMETERS, VARIABLES, EQUATIONS, SOLVE - GamsDataeXchange (GDX): Input from/Output to other formats (CSV, XLS) 	Model: CGE-TRADE <ul style="list-style-type: none"> - Single Region Models - Multi Region Models - Trade theories: comparative advantages vs. Heckscher-Ohlin-Samuelson vs. 'Armington'-approach Exercise: CGE-TRADE.gms (Single Region)	Applying CGE modelling to the economics of Climate Change <ul style="list-style-type: none"> - Integration with Climate models. - Scenario-based analysis 	Exercise: Land Use	Exercise: Analyse a policy impact of interest using the outcome of CGE simulations
15:30-16:00	coffee break				
16:00-17:30	Introduction to GAMS - 2: <ul style="list-style-type: none"> - Presentation of some GAMS standard examples (GAMS vs. GAMS/MPSGE) - Exercises: GAMS standard examples 	Model: CGE-NCES <ul style="list-style-type: none"> - Introducing nested CES functions Execise: CGE-NCES.gms	Exercise: The Economics of Climate Change	Exercise: Land Use	Concluding Remarks