



Ruhr Graduate School in Economics
University of Duisburg-Essen
Essen, Germany, March 23-27, 2009

5th Ruhr Graduate Summer School

Introduction to Computable General Equilibrium Modeling with GAMS and MPSGE

Instructors:

Professor James R. Markusen, University of Colorado, Boulder, USA

Professor Volker Clausen, University of Duisburg-Essen, Germany

Objective:

The workshop will provide an introduction to applied (numerical) general equilibrium models constructed using GAMS and MPSGE. The workshop addresses beginners, no previous knowledge of GE modeling is assumed, but knowledge of intermediate microeconomics (master's level) is important. This workshop is intended for economists who are interested in using numerical modeling for simulation analysis of theoretical models and those who want to do policy analysis with real data.

The teaching technique we will follow consists of three steps repeated each half day: (1) a brief lecture, (2) examination and discussion of techniques via the use of simple template models, (3) exercises for the participants. Both instructors are available during the entire workshop.

Instructors:

James R. Markusen
University of Colorado, Boulder

James Markusen is Professor of Economics, University of Colorado at Boulder. His research focuses on international trade and multinational activity. Over the last 20 years he concentrated on the location, production, and welfare effects of large-scale firms and multinational corporations. He worked both on theoretical models and numerical, computer simulation models. His research on the role of multinationals in the international economy culminated in a widely cited book by MIT press in 2002. He has widely published in the top economic journals such as the “American Economic Review”, the “International Economic Review” or the “Journal of International Economics”.

Volker Clausen
University of Duisburg-Essen, Campus Essen

Volker Clausen is Professor of International Economics, University of Duisburg-Essen, Campus Essen since 2001. Previously he worked at the Universities of Kiel and Bonn in Germany and at Indiana University, in Bloomington, Indiana (USA). He holds a Ph.D. in Economics from the University of Kiel, Germany, and a Master of Science in Economics from the London School of Economics and Political Science. His current research interests include general equilibrium modeling with a focus on ageing in open economies and also in development economics. His publications have a focus on international topics and appeared in, among others, the “Journal of International Money and Finance”, the “Journal of Economic Integration” and the “Review of World Economics”.

Course Coordinator:

Ute Volz
Ruhr Graduate School in Economics, Essen, Germany

Workshop Topics and Schedule:

Monday, March 23:

- Morning
 - Install discuss, and explain software
 - Basic GAMS syntax: SETS, TABLES, PARAMETERS, EQUATIONS, MODELS, DISPLAY, etc.
 - Exercises
- Afternoon
 - Brief lecture on the elements and formulation of numerical GE models
 - Formulating and solving square systems of equations/inequalities
 - Micro-consistent initial data and calibration
 - Coding and replication checks
 - Examination of simple template models
 - Exercises

Tuesday, March 24:

- Morning
 - An introduction to MPSGE, translating algebraic models into MPSGE
 - Some simple template models
 - Exercises
- Afternoon
 - Extensions to the basic framework taught with template examples
 - Intermediate inputs and joints outputs
 - Specific factors, slack activities, labor/leisure choice
 - Multiple households
 - Exercises

Wednesday, March 25:

- Morning
 - Extension to the basic framework taught with template examples
 - Taxes in benchmark data
 - Tax reform (e.g., equal yield reforms)
 - Modeling public goods
 - Classical unemployment
 - Exercises
- Afternoon
 - Extensions to open economy models taught with template examples
 - Modeling a small open economy
 - Tariffs in the benchmark data
 - Quotas and voluntary export restraints
 - Exercises

Thursday, March 26:

- Morning
 - Economies with a benchmark trade imbalance
 - Armington formulations
 - Large open economies
 - A full two-country Heckscher-Ohlin model

- Afternoon
 - Models with monopolistic competition
 - Models with scale economies and imperfect competition
 - Cournot competition with increasing returns to scale
 - Cournot competition with free entry and exit
 - Exercises

Friday, March 27:

- Morning
 - Effects of trade liberalization (Uruguay Round)

- Afternoon
 - Introduction to GTAP
 - Large-scale modeling, calibration and spreadsheet interfaces

Times and Location

Morning sessions will begin at 9am. Lunch is provided for workshop participants at noon. The afternoon sessions will run from about 1-4pm. All sessions take place at the Department of Economics at the University of Duisburg-Essen, [Campus Essen](#):

*University of Duisburg-Essen, Campus Essen
Universitätsstraße 12
45117 Essen
Germany*

Payment and Registration:

The fee for participating in the training workshop is 2,500 Euro and includes lectures, course material and lunches. **Participants are required to bring a laptop with a CD-ROM drive. The GAMS workshop licence (valid for 2 months) as well as extensive course material will be provided on CDs.**

Academic participants from accredited universities or research institutions will be admitted on a space-available basis for a discount of 20%. Graduate students from accredited academic institutions are likewise admitted on a space-available basis for a discount of 50%. Please fax a copy of your student ID to get the discount. There will be a limited number of scholarships (*excluding travel and*

subsistence expenses) that have been set aside for qualified participants from developing countries. Deadline for the application for a scholarship is January 16, 2009. Preference will be given to applicants who have documented previous experience in general equilibrium modeling with GAMS. To apply for a scholarship in the form of a tuition waiver, send your CV and a research paper via email to [Ute Volz](mailto:Ute.Volz). A decision on the allocation of scholarships will be made until January 21, 2009, in order to allow for an early arrangement of flights, visa etc.

To register by phone, fax, or e-mail, contact:

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Ute Volz
University of Duisburg-Essen
Department of Economics
45117 Essen, Germany
Telephone: +49 (0)201-183-4507
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The registration deadline is March 1, 2009. The maximum number of participants is restricted to 16.

Slots are guaranteed only upon full payment of fees (by check or credit card) through the GAMS Course Coordinator. Cancellations will be fully refunded if made prior to March 1, 2009. No refunds will be made after the registration deadline.

Note the following disclaimer and limited liability: The program and the list of instructors are confirmed and correct at the time of publication. In case of any serious circumstances or acts of nature beyond control of the organizers, such as for example illness, death, cancellation of flights etc., the organizers aim for an adequate substitution. In the very unlikely, but still possible case, the maximum liability of the organizers is limited to the tuition. The organizers do not cover any other costs of the participants, such as travel bookings, visa fees etc.

Venue and Accommodation:

Workshop participants must make their own arrangements for accommodation. The workshop will be held at the Department of Economics at the University of Duisburg-Essen, [Campus Essen](#): *University of Duisburg-Essen, Campus Essen, Universitätsstraße 12, 45117 Essen, Germany*. Venue information will be provided after reservation.

Information on nearby hotels and links to maps of Essen can be found [here](#).

Some rooms have been pre-reserved at:

Bildungshotel im Bfz-Essen e.V., Karolingerstraße 93, 45145 Essen, T: 0201/3204-243, F: 0201/3204-277, bildungshotel@bfz-essen.de, http://www.bildungshotel-essen.de/zimmer_e.htm approx. 43€ per night.

Very close to the university is the following hotel:

*Welcome Hotel(****), Schützenbahn 58, 45127 Essen, T: +49 201 1779-0, F: +49 201 17 79-199, <http://www.welcome-to-essen.de/>, approx. 130€ per night.*

Slightly further away and somewhat less expensive:

Ibis Hotel Essen, Hollestrasse 50, 45127 Essen/Germany, +49/201/24280, <http://www.ibishotel.com/ibis/index.html>, approx. 110€ per night.

How to Prepare:

Workshop participants can do a number of things to prepare for the workshop. Here are some suggestions:

- [Download](#) and install a free demo of the GAMS system software. The [GAMS User's Guide](#) is available on the web and provides a documentation of GAMS notation and syntax.
- Look at background material provided over the web, either on the [GAMS home page](#), the [MPSGE home page at GAMS](#), or [Thomas Rutherford's web page](#).
- Read Jim Markusen's [tutorial chapters](#) and look at the corresponding [model examples](#).
- For students interested in the use of GAMS/MPSGE for doing economic theory, see James Markusen, *Multinational Firms and the Theory of International Trade*, MIT University Press, 2002.