

## Syllabus

[cmcd.economia@fgv.br]

**Course: Computable General Equilibrium Modeling**

**Professor:**

### 2018 FIRST SEMESTER

#### PROGRAM

The course will teach how to develop applied computable general equilibrium (CGE) techniques and modeling, introducing the use of the General Algebraic Modeling System (GAMS). Students will learn the theoretical aspects behind the CGE modeling, as also as how to build simple and complex models from scratch. We will cover modeling techniques able to represent single region and multiregional models, closed and open economy models, static and dynamic (recursive and forward-looking) models. The students will build their own model and apply it to research questions related to fiscal policy, trade and regional integration, economic growth, environmental policy, technological change, among others.

The Program is organized in the topics:

1. Introduction to computable general equilibrium modeling
2. Input-output models and social accounting matrices
3. Building CGE models in GAMS/MPSGE
4. Single country, static, open and closed economy CGE models
5. Multiregional CGE models
6. Recursive dynamic CGE models
7. Forward looking CGE modeling

#### BIBLIOGRAPHY

Dixon, P. B., Jorgenson, D. W. *Handbook of Computable General Equilibrium Modeling*. North Holland, 1.841 p., 2013.

Miller, R. E., Blair, P. D. *Input-output analysis: foundations and extensions*. 2<sup>nd</sup> Ed. Cambridge University Press. 2009.

Global Trade Analysis Project – GTAP, 2001. (<http://www.agecon.purdue.edu/gtap/>)

Sadoulet, E., De Janvry, A. *Quantitative development policy analysis*. Baltimore: The Johns Hopkins University, 397 p., 1995.

Shoven, J. B., Whalley, J. *Applying general equilibrium*. 3.ed. Cambridge: Cambridge University Press, 1992. 299 p.

Dervis, Kemal, Jaime de Melo and Sherman Robinson (1982). *General Equilibrium Models for Development Policy*. Cambridge University Press.

Guilhoto, J. J. *Análise de insumo-produto: teoria e fundamentos*. 2011. (mimeografado). (<http://mpr.ub.uni-muenchen.de/32566/>)

Pyatt, Graham, and Jeffery I. Round, eds. 1985. *Social Accounting Matrices: A Basis for Planning*. Washington, DC: World Bank.

Brooke, A. Kendrick, D., Meeraus, A., Raman, R. *GAMS: a user's guide*. GAMS Development Corporation, 262 p., 1998. (<http://www.gams.com/>)

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Rutherford, T. F. Extensions of GAMS for complementarity problems arising in applied economics. *Journal of Economic Dynamics and Control*, v.19, n.8, p. 1299-1324, 1995.

Rutherford, T. F. Applied general equilibrium modeling with MPSGE as a GAMS subsystem: an overview of the modeling framework and syntax. *Computational Economics*, v. 14, n.1, p. 1-46, 1999.

Rutherford, T. F. *GTAP6inGAMS: The dataset and static model*. 42 p., 2005, mimeo. (<http://www.mpsge.org/gtap6/gtap6gams.pdf>)

## GRADING

Homework: 30%

Literature review and presentation: 20%

Final paper and presentation: 50%

## PROFESSOR - EMAILS

## DETAILED PROGRAM

Class	Date	
1		Introduction
2		Input-output models
3		Social accounting matrices
4		Literature on CGE: students presentation
5		Programing optimization problems in GAMS
6		General equilibrium modeling in GAMS/MPSGE
7		Single country static CGE models: closed economy
8		Single country static CGE models: open economy
9		Multiregional static CGE: GTAP model
10		Multiregional static CGE: GTAP model
11		Multiregional models for Brazil
12		Recursive dynamic CGE models
13		Recursive dynamic CGE models
14		Forward looking CGE modeling
15		Students paper presentation