

INTERNATIONAL UNIVERSITY OF JAPAN
Graduate School of International Relations

Academic Year: 2013/2014

Term: Fall

Course	Course code ADC6545	Course title Computable General Equilibrium Modeling	
Name of Instructor	Ryuta Ray Kato		Credit Number: 2
Instructor's contact Information	Office# 510	Office Hours	E-mail: kato@iuj.ac.jp
Class Schedule Day / Time	Monday 4 th and 5 th periods / 14:40-16:10, 16:20-17:50		

Course Description: The aims of this course are to introduce basic concepts of the general equilibrium and techniques of computable general equilibrium models to students. In this year, only static models will be taught.	
Learning Objectives: In the static models, the very basic input-output models within the general equilibrium framework will be introduced with numerical applications based on simple FORTRAN programming as well as GAMS. The actual data of Japan as well as other countries will be used as applications of the static model, which will be helpful for students to get familiar with the static model. This course does not assume any background in/understanding of computer programming so that both of GAMS and FORTRAN will be introduced to students from a very introductory level.	
Career Relevance: The final goal of this course is to equip students with practical and numerical simulation techniques, which could be very powerful to analyze actual government policies within the rigorous economics framework.	
Course Context or Rationalization: Since students can equip themselves with numerical tools, they can apply the numerical tools to the theories they have studied in other courses. In particular, students can obtain several policy implications by executing their own programs so that they can deepen their understanding of other courses.	
Delivery Methods: Lecturing, and computing with FORTRAN and GAMS.	
Assessment: A term paper only.	
Prerequisite: Microeconomics, macroeconomics and introductory level mathematics	
Textbook(s)	No textbooks are required. However, the following books will be useful as supplementary books. Supplementary Texts:

	<p>In the static models, the following two books are particularly useful.</p> <ol style="list-style-type: none"> 1. Dinwiddy, C L, and F J Teal, The Two-Sector General Equilibrium Model; A New Approach, St. Martin's Press, 1988 (ISBN: 0-86003-175-6; paperback) Although this book is relatively old, it is still a good introductory book on the numerical general equilibrium model. In particular, this book will extremely be useful for understanding the concept of general equilibrium. Furthermore, the first several lectures will be given based on this book. 2. Hosoe, N, K Gasawa, and H Hashimoto, Textbook of Computable General Equilibrium Modeling: Programming and Simulations, Palgrave, 2010 (ISBN: 978-0-230-24814-4) <p>This is a book on computable general equilibrium modeling with GAMS. This book introduces GAMS programming from a very introductory level, and it would be one of books which will definitely help you understand this course. More than 70% of this course will be given based on this book.</p> <p>Regarding computing languages, FORTRAN and GAMS will be introduced in this course. The following books will be helpful for the computer languages.</p> <ol style="list-style-type: none"> 1. Nyhoff, Larry and Sanford Leestma, Introduction to FORTRAN 90, Esource--the Prentice Hall Engineering Source, Prentice Hall College Div, 1999, (ASIN: 0130131466) This textbook on FORTRAN computer programming language is relatively easy and end-user friendly, although there are many textbooks on FORTRAN. 2. Brooke, A, D Kendrick, and A Meeraus, GAMS: A User's Guide: Release 20.25, Boyd & Fraser Publishing Company, 1992 (ISBN: 0-89426-213-0) This is an official GAMS reference book. 3. Lofgren, H, R L Harris, and S Robinson, A Standard Computable General Equilibrium (CGE) Model in GAMS, Microcomputer in Policy Research 5, International Food Policy Research Institute, 2002 (ISBN: 0-896-29720-9) This is also a book on GAMS, where there are more explanations about economic models with the general equilibrium concept. <p>Further reading materials will be introduced during the course.</p>
Class Outline	<p>Class 1: The Concept of the General Equilibrium Model I</p> <p>Class 2: The Concept of the General Equilibrium Model II</p> <p>Class 3: Static Computable General Equilibrium Models with Numerical Examples by FORTRAN</p> <p>Class 4: Static Computable General Equilibrium Models with Numerical Examples by GAMS I</p> <p>Class 5: Static Computable General Equilibrium Models with Numerical</p>

	<p>Examples by GAMS II</p> <p>Class 6: Static Computable General Equilibrium Models with Numerical Examples by GAMS III</p> <p>Class 7: Static Computable General Equilibrium: GAMS/FORTRAN with the actual data set I</p> <p>Class 8: Static Computable General Equilibrium: GAMS/FORTRAN with the actual data set II</p> <p>Class 9: Static Computable General Equilibrium: GAMS/FORTRAN with the actual data set III</p> <p>Class 10: Static Computable General Equilibrium: GAMS/FORTRAN with the actual data set IV</p>
Others (if any)	