University of St.Gallen

International Macroeconomics

Master's in Economics (MEcon) — Spring 2021

February 22, 2021

Course number:	8,270,1.00
ECTS credits:	4
Lecture and tutorial times:	Mondays, 6:15pm to 8pm
Lecture dates:	22 February through 17 May (except 8 March and 19 April)
Tutorial dates:	8 March and 19 April
Lecture hall:	(online only)
Zoom ID:	864 1015 6764 (password protected)
Examination form:	None. Grade is based on two Take-home Problem Sets
Course web pages:	*econ.ucsd.edu/muendler/teach/21s/8270* & *learning.unisg.ch/courses/9673*

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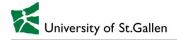|	
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DESCRIPTION

This course studies the conceptual tools to understand open economies and their macroeconomic interaction with global markets. The course equips you with the hands-on computing tools to simulate the open economy and its adjustment to local and global shocks yourself. For this dual purpose, the course presents open-economy macroeconomics from a theoretical and quantitative perspective. Topics include theories of the trade balance and the current account and their relationship to domestic macroeconomic variables, domestic productivity change, the terms of trade and the real exchange rate, as well as determinants of international capital flows. The course emphasizes real-side explanations. You will put the models to work in quantitative exercises using current country data and state-of-the-art software programs, written in MATLAB.

PREREQUISITES

Macroeconomics II is a prerequisite for this course, including basic knowledge of dynamic optimization techniques in discrete time. Familiarity with the software package MATLAB can help, but is not necessary. The relevant aspects of dynamic optimization and MATLAB coding will be covered in the course.

OBJECTIVES

After completion of this course, you will be able to:

- Simulate open economies yourself and study their responses to local or global macroeconomic influences, using state-of-the-art software programs.

- Base predictions of the trade balance and the current account balance on optimal consumer and firm behavior as well as government interventions, both in simplified two-period models and more advanced infinite-horizon models using dynamic optimization.

- Use a fundamental current account equation to state predictions and relate the equation to empirical evidence on open-economy macroeconomics.

- Model open economies with multiple sectors, using optimality conditions from a social planner's perspective and decentralized optimality conditions.

- Learn about the concept of calibration (the empirical quantification of the parameters of a model), and fit an open-economy real-business-cycle model yourself using data and Matlab.

- Assess how fluctuations in domestic productivity and international relative prices (the terms of trade and the real exchange rate) move the real business cycle and domestic macroeconomic variables (such as consumption, investment, national income, employment, and wages) in the presence of traded and non-traded goods.

STRUCTURE

The course content is grouped into two main blocks of instruction. The first five lectures in block I gradually lay the foundations of open-economy macroeconomics, progressing from households in an endowment economy to households and firms in a production economy, and moving from two-period to infinite-horizon models. Embedded in the first block is also a Tutorial on using MATLAB for macroeconomic simulations in the open economy. At the end of block I stands an open-economy real-business-cycle model that unifies the insights for rigorous quantification. A first software-based exercise in the form of a problem set concludes this first block.

Block II starts out with a review of the first software-based exercise, so as to prepare you for the second one. The four lectures in block II then consider the terms of trade and the real exchange rate, as well as shocks that move them, so as to assess how these relative prices affect the real business cycle in the open economy. The lectures present empirical evidence from structural vector auto-regression models and contrast them with predictions from versions of the calibrated theory model. A full understanding of the terms of trade and the real exchange rate requires an export-producing, an import-competing, and a non-traded goods sector. The second software-based exercise asks you to apply the insights and assess the plausibility and practical relevance of the extended model.

MATERIALS

Lecture notes become available online at *Canvas* before each lecture.

Textbooks (required): Obstfeld and Rogoff (1996)/Chapters 1, 2 and 4; Uribe and Schmitt-Grohé (2017)/Chapters 1, 2, 3, 4, 7 and 8.

Background Readings (recommended): Lucas (1982); Nason and Rogers (2006); Mendoza (1991).

The two textbooks complement each other. The recommended background readings help you review the lecture material beyond the textbooks. Background readings are available through the course web page. Web links to copyrighted readings may only work from on-campus domains.

PROBLEM SETS

There will be two take-home problem sets (due on 19 April and 18 June). Each problem set counts 50 points, so the total score for the course is 100 points. The language of the problem sets is English. The expected language of answers is English.

The problem sets ask you to obtain country-level data, prepare and detrend them; to mathematically derive variations of the material in class; and to then implement variations of existing MATLAB code to simulate the according variants of the model. Baseline data and code in MATLAB (and optionally for parts of problem set 1 in STATA) are available at StudyNet (Canvas).

You have about one month time to complete each problem set. You can contact the teaching assistant and the instructor with any questions on the data or code.

There are two scheduled tutorials for the course. The first tutorial provides an introduction to MATLAB as well as an explanation of the existing code that you will use for your problem sets. The second tutorial, immediately after the due time of the first problem set, will review possible answers and code variations from the first problem set.

ASSESSMENT

Your final raw score will be your total points from the two submitted problem sets:

Problem sets:	50 and 50 points	out 1 March and 17 May (due 19 April and 18 June)
Total:	100 points	

Your final *grade* will be assigned similar to the typical grade distribution (curve) in *Master's of Economics* courses at the University of St. Gallen.

TEACHING MODALITY

In response to the ongoing SARS-Cov-2 pandemic, and in accordance with HSG policy, the course will be held online. The examination format is online submission of two Take-home Problem Sets.

COURSE SCHEDULE

I. Foundations of Open-economy Macroeconomics

1. Mon, 22 February (online): Intertemporal Trade in the Open Economy
  Main readings: Obstfeld and Rogoff (1996)/Ch. 1; Uribe and Schmitt-Grohé (2017)/Ch. 2
  Background reading: Lucas (1982)

2. Mon, 1 March (online): Intertemporal Trade and Production
  Main reading: Obstfeld and Rogoff (1996)/Ch. 1, Uribe and Schmitt-Grohé (2017)/Ch. 1
  PROBLEM SET 1 OUT

Tutorial 1, Mon, 8 March (online): Using MATLAB for macroeconomic analysis

3. Mon, 15 March (online): Current Account Dynamics
Main reading: Obstfeld and Rogoff (1996)/Ch. 2
Background reading: Nason and Rogers (2006)

4. Mon, 22 March (online): Firms, Investment, and the Current Account
Main readings: Obstfeld and Rogoff (1996)/Ch. 2; Uribe and Schmitt-Grohé (2017)/Ch. 3

5. Mon, 29 March (online): Open-economy Real Business Cycle Model
Main reading: Uribe and Schmitt-Grohé (2017)/Ch. 1 and Ch. 4
Background reading: Mendoza (1991)

II. The Terms of Trade and the Real Exchange Rate

Tutorial 2, Mon, 19 April (online): Solutions to Problem set 1
PROBLEM SET 1 DUE prior to the tutorial

6. Mon, 26 April (online): The Terms of Trade
Main reading: Uribe and Schmitt-Grohé (2017)/Ch. 7

7. Mon, 3 May (online): The Terms of Trade and a Two-sector Open-economy Model
Main readings: Uribe and Schmitt-Grohé (2017)/Ch. 7; Obstfeld and Rogoff (1996)/Ch. 4

8. Mon, 10 May (online): The Real Exchange Rate
Main reading: Uribe and Schmitt-Grohé (2017)/Ch. 8

9. Mon, 17 May (online): The Real Exchange Rate and a Three-sector Open-economy Model
Main readings: Uribe and Schmitt-Grohé (2017)/Ch. 8; Obstfeld and Rogoff (1996)/Ch. 4
(no lecture on 24 May, Whit Monday holiday)
PROBLEM SET 2 OUT

Fri, 18 June: PROBLEM SET 2 DUE on last Friday prior to centrally organised examination weeks

References

Lucas, Robert E. Jr., "Interest Rates and Currency Prices in a Two-Country World," *Journal of Monetary Economics*, November 1982, *10* (3), 335–59.

Mendoza, Enrique G., "Real Business Cycles in a Small Open Economy," *American Economic Review*, September 1991, *81* (4), 797–818.

Nason, James M. and John H. Rogers, "The Present-Value Model of the Current Account Has Been Rejected: Round Up the Usual Suspects," *Journal of International Economics*, January 2006, *68* (1), 159–87.

Obstfeld, Maurice and Kenneth Rogoff, *Foundations of international macroeconomics*, Cambridge, Mass. and London: MIT Press, 1996.

Uribe, Martín and Stephanie Schmitt-Grohé, *Open economy macroeconomics*, Princeton and Oxford: Princeton University Press, 2017.