

INTERNATIONAL MONETARY FUND
Joint Vienna Institute (JVI) / IMF Institute for Capacity Development (ICD)

Course on Macro-econometric Forecasting and Analysis (JV18.11)

Vienna, Austria
April 30 – May 11, 2018

PROGRAM¹

<i>Monday, April 30</i>		
8:00 a.m. – 9:00 a.m.		Administrative Briefing
		<i>Ms. Tatiana Bredniakova</i> , Program Officer, JVI
9:00 a.m. – 9:30 a.m.		Opening Session <i>Mr. Thomas Richardson</i> , Director, JVI; and <i>Mr. Charis Christofides</i> , Senior Economist, European and Middle Eastern (EM) Division, ICD
9:30 a.m. – 10:30 a.m.		Initial Quiz
10:30 a.m. – 12:10 p.m.	L-0	Introductory Lecture: Overview of the Macro-econometric Forecasting and Analysis course <i>Mr. Charis Christofides</i> <ul style="list-style-type: none"> • A short introduction to the design of the course, its main elements, and objectives • Structure of the course, role of participants and counselors • Philosophy of forecasting, caveats, and related issues
12:15 p.m. – 12:30 p.m.		Group photo
	Unit 1	Structural VARs and their application I: short-run restrictions <i>Mr. Mikhail Pranovich</i> , Senior Economist, EM Division, ICD
2:00 p.m. – 3:30 p.m.	L-1	<ul style="list-style-type: none"> • Introduction to SVAR: identification problem • Choleski decomposition and short-run SVAR restrictions
3:30 p.m. – 5:30 p.m.	W-1	<ul style="list-style-type: none"> • Evaluating effect of monetary policy shocks in “Choleski-ordered” SVARs, SVARs with the “institutionally-implied” short-run restrictions

¹ *Coffee breaks are normally held from 10:30 a.m. – 11:00 a.m. and from 3:30 p.m. – 4:00 p.m. Lunch breaks are from 12:30 p.m. – 2:00 p.m. (Unless otherwise indicated).*

Tuesday, May 1

	Unit 2	Modeling of non-stationary variables, forecasting with VECMs <i>Mr. Alexei Miksjuk, Economist, Joint-Vienna Institute</i>
9:00 a.m. – 12:30 p.m.	L-2	<ul style="list-style-type: none"> • Testing variables for integration • Testing for co-integration and estimating VECMs
2:00 p.m. – 5:30 p.m.	W-2	<ul style="list-style-type: none"> • Estimating long-run macroeconomic equilibrium relationships. Forecasting with VECMs

Wednesday, May 2

	Unit 3	Structural VARs and their application II: long-run and other restrictions <i>Mr. Mikhail Pranovich</i>
9:00 a.m. – 10:30 a.m.	L-3	<ul style="list-style-type: none"> • Identifying structural VARs using long-run restrictions • Other restrictions
10:30 a.m. – 12:30 p.m.	W-3	<ul style="list-style-type: none"> • An SVAR for evaluating effects of fiscal policy. Studying the effects of supply and demand shocks in an SVAR with long-run restrictions. Identification using sign restrictions.
	Unit 4	Conditional forecasting with VARs in small open economies <i>Mr. Mikhail Pranovich</i>
2:00 p.m. – 3:30 p.m.	L-4	<ul style="list-style-type: none"> • Conditional forecasting using VARs • Incorporating external forecasts and scenario analysis
3:30 p.m. – 5:30 p.m.	W-4	<ul style="list-style-type: none"> • Conditional forecasting and scenario analysis with a VAR model for a small open economy

Thursday, May 3 (Note—to change with Unit 6 on Friday)

	Unit 5	State-Space Models and the Kalman Filter <i>Mr. Charis Christofides</i>
9:00 a.m. – 12:30 p.m.	L-5	<ul style="list-style-type: none"> • State-space representation • The Kalman filter • Maximum likelihood estimation and Kalman smoothing
2:00 p.m. – 5:30 p.m.	W-5	<ul style="list-style-type: none"> • Application of state-space models: estimating business condition index, forecasting the yield curve, estimating equilibrium interest rate • Output gap estimation (e.g., HP filter, multivariate filter)

Friday, May 4 (Note – To change with Unit 5 on Thursday; WEO public lecture at 10:30 Fri.)

	Unit 6	Bayesian Models and Bayesian VARs (BVARs) <i>Mr. Mikhail Pranovich, (Mr. Alexei Miksjuk on W-6)</i>
9:00 a.m. – 12:30 p.m.	L-6	<ul style="list-style-type: none"> • Introduction to Bayesian econometrics, estimation of linear regression models • Activity: exercise on Bayesian estimation of moments of normal distribution • Estimating BVARs with analytical Minnesota and DSGE-VAR priors • Review of empirical results on BVARs forecasting performance
2:00 p.m. – 5:30 p.m.	W-6	<ul style="list-style-type: none"> • Estimating BVARs with Minnesota, Normal-Wishart priors and DSGE-VAR priors. Forecasting macroeconomic variables with BVARs

Monday, May 7

	Unit 7	Factor Models and Factor-Augmented VARs (FAVARs) <i>Mr. Mikhail Pranovich, (Mr. Alexei Miksjuk on L8, W-8)</i>
9:00 a.m. – 10:30 a.m.	L-7	<ul style="list-style-type: none"> • Basics of factor models • Small and large scale; selection of number of factors
10:30 a.m.– 12:30p.m.	W-7	<ul style="list-style-type: none"> • Estimation, forecasting with FAVAR
2:00 p.m. – 3:30 p.m.	L-8	<ul style="list-style-type: none"> • Extensions • Unbalanced datasets; I(1) variables; nonlinearities
3:30 p.m. – 5:30 p.m.	W-8	<ul style="list-style-type: none"> • Estimating FAVARs on several macro-financial datasets (monthly industrial production; quarterly GDP growth; monthly inflation). Examples from both industrial and emerging economies.

Tuesday, May 8

	Unit 8	Mixed Frequency Models (MIDAS, UMIDAS, 3PRF) <i>Mr. Charis Christofides</i>
9:00 a.m. – 10:30 a.m.	L-9	<ul style="list-style-type: none"> • Introduction, bridge models • MIDAS – representation, estimation, forecasting • UMIDAS and extensions
10:30 a.m.– 12:30p.m.	W-9	<ul style="list-style-type: none"> • Forecasting quarterly GDP growth (advanced case, Poland, Jordan)
2:00 p.m. – 3:30 p.m.	L-10	<ul style="list-style-type: none"> • MIDAS – representation, estimation, forecasting • Extensions (factor models, 3PRF)
3:30 p.m. – 5:30 p.m.	W-10	<ul style="list-style-type: none"> • Forecasting quarterly GDP growth (advanced case, Poland, Jordan)

Wednesday, May 9

	Unit 9	Forecast Combinations <i>Mr. Alexei Miksjuk</i>
9:00 a.m. – 10:30 a.m.	L-11	<ul style="list-style-type: none">• Motivation for combining forecasts• Implementation issues• Methods to assign weights Volatility impact on first moment prediction
10:30 a.m. – 12:30 p.m.	W-11	<ul style="list-style-type: none">• Application of combination techniques to forecasting of macroeconomic variables
	Unit 10	Final Project: application of models for policy analysis and forecasting in selected countries <i>All Counselors (Mr. Alexei Miksjuk to introduce)</i>
2:00 p.m. – 5:30 p.m.	O-1	<ul style="list-style-type: none">• Projects: Participants will be provided (and encouraged to bring their own) datasets for a number of selected countries from the region and apply models taught in the course to forecast inflation or another key macro variable (single equation, factor, Kalman Filter, combination, etc.)

Thursday, May 10

9:00 a.m. – 5:30 p.m.	Unit 10 (cont'd)	Final Project: application of models for policy analysis and forecasting in selected countries <i>All Counselors</i>
	O-1	<ul style="list-style-type: none">• Projects: Participants will be provided (and encouraged to bring their own) datasets for a number of selected countries from the region and apply models taught in the course to forecast inflation or another key macro variable (single equation, factor, Kalman Filter, combination, etc.)

Friday, May 11

9:30 a.m. – 11:30 a.m.	Unit 10 (final)	Final Project: application of models for policy analysis and forecasting in selected countries <i>All Counselors</i>
	O-2	<ul style="list-style-type: none">• Project presentations: groups present and discuss results of their projects in a plenary session
11:30 a.m. – 1:00 p.m.		Final Test and Course Evaluation
