

# MPE\_AMEM: Introduction and Technical Requirements

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Tomas Motl, Course for Masaryk University, Spring 2023

## About Me

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- graduated in 2010 from PŘF MU
- two years PhD with prof. Vašíček, then left for OGREsearch (<https://www.ogresearch.com/>)
- work on model development, forecasting, training, ...
- hired by IMF and other institutions to provide trainings in Africa (Angola, Rwanda, Morocco, Mozambique, ...) and Asia (Mongolia, Philippines, ...)
- recently also macroprudential modeling ([www.gimm.institute](http://www.gimm.institute)), yield curve modeling, ...

## Course Content

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### What you will learn

- how macroeconomic forecasting is done
- structure of a simple, workhorse macroeconomic model
- how to tailor a model to an economy (at least the basics)

### What you will not learn

- modeling theory, fancy DSGE stuff
- coding, fancy math
- some important parts of real-life model use will be skipped or discussed only briefly, for the sake of time:
  - how to calibrate model and verify its properties
  - how to identify initial condition for the forecast
- ask questions, we can discuss more if we have time

### Outline

- derive a basic small open economy model, examine properties
- tailor the model to chosen economy
- use the model to reproduce a specific historical period

### Requirements to pass

- finish two presentations
- finish final project
- work will be done in groups of max 5 people

## This course is for you

- course will be useful for you if:
  - you are active, ask questions, interrupt me when you don't understand
    - you have quite diverse background and I already forgot what I had to learn after school
  - actually do the work yourself
  - read the materials provided
- lecture materials will be available always well before the next lecture
  - if you study them (they are short), we can spend less time on theory and more time on interesting stuff
  - if you ask questions, I'll be able to tailor the course better for you
- you can probably get the presentations / project from older students, but then you will learn nothing
  - the point of this course is to try something you haven't done before, so you learn something
  - if you just want credits, take swimming or something

## Course Organization:

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### Schedule + tentative outline

- 6 blocks, each on Tuesday from 18.00
- Schedule and content:
  - **Block 1: Introduction, 3-equation NK model**  
Feb 28
  - **Block 2: Open economy model**  
March 7  
  
*Presentation 1*
  - **Block 3: Tailoring the model to a particular economy**  
March 21
  - **Block 4: Bringing the model to data**  
April 4  
  
*Presentation 2*
  - **Block 5: Interpreting a particular historical period via the model**  
April 18
  - **Block 6: Model forecast, expert judgment**  
April 25  
  
*Final project*

## Technical Requirements

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Please make sure to have the following software ready for the second lecture.

Matlab:

- you have access to university license
- the codes we will use were tested in Matlab 2019a, but anything between 2019a and 2022b should work
- only basic installation needed, no need to install toolboxes

PDF Viewer

- Acrobat Reader is fine
- SumatraPDF is better

Excel / LibreOffice / OpenOffice (LibreOffice is best and it's free)

IRIS Toolbox

- IRIS version 20221026 - provided in Study Materials, or download from <https://github.com/IRIS-Solutions-Team/IRIS-Toolbox/releases/tag/Release-20221026>
  - read about IRIS here: <https://iris.igpmn.org/>
- you need to start IRIS each time you start Matlab
  - change Matlab current folder to the folder with IRIS
  - run command "iris.startup"
  - you should see the following output

```
[IrisToolbox] for Macroeconomic Modeling Release 20221026
Copyright (c) 2007-2023 [IrisToolbox] Solutions Team

Matlab requirements: R2018a or later
Root folder: /home/tmotl/IRIS/IRIS_Tbx-20221026
LaTeX Engine: /usr/bin/pdflatex
Ghostscript engine: /usr/bin/gs
X13-ARIMA-SEATS: Version 1.1 Build 39 (March 10, 2017)
```

Testing

- download "closed\_model.zip" from Study Materials
- start Matlab, start IRIS
- run file "run\_toy\_kalman.m"
- if you get two Matlab charts and no error, everything is fine

**If you have a problem, email me right away**

