SE Macroeconometrics:
Class exercises univariate tsa modelling and forecasting for the PC-Lab
(excercises for deseasonalization are handed out separately)

Data and Programs are found at
http://statmath.wu.ac.at/~hauser/LVs/SE_MacroEconometrics/Data_and_Programs/

Ex 1) Use data file unemp.wf1 or inpe.wf1 from the seas_ex.zip and fit a SARIMA model.
Use as starting point the "airline" model given below.
Choose as estimation period until 2008M12 and forecast the series 2009M01 until the end.
Inspect visually actual and forecasted path together with the forecast interval.
Use both static (1-step ahead) and dynamic(1- to n-step ahead) forecasts.

The plot is based on a group with members (in notation of the unemp.wf1):
unempf
unemp
(unempf - 1.96*unempse)
(unempf + 1.96*unempse)

"Airline" model:
The "airline" model is in EViews notation: dlog(airline,1,12) MA(1) SMA(1), a multiplicative seasonal ARIMA model. In standard notation:
SARIMA(0,1,1)x(0,1,1)_12
(1-B)(1-B^(12))air_t = c + (1+b1*B)(1+b12*B^(12))e_t

Ex2) Choose an exchange rate from exchr.wf1 (all rates with respect to the DM).
Choose a model and test for unit roots.
(You could also try to estimate a GARCH component in the residuals.)

Ex 3)
3.a) Open a new EViews-Workfile with 1000 observations. Generate some series with the
EViews-program simu_arima.prg. Investigate the series according to
- plot and comment the time series path,
- inspect the correlogram and histogram
- apply suitable transformations
- calculate, plot and comment the first differenced series
- inspect its correlogram and histogram.

Search for a suitable ARMA model for the original (if necessary transformed) or
first differenced series. Check the residuals.
3.b) Reduce the sample size to 100 and repeat.
3.c) Choose some other parameter values in the models.
(EViews: File --> Open --> Program simu_arima.prg. In Program-Window press RUN.)

Ex 4) If time is left we check for cointegration in saibler_url.wf1 (consumption and disposable income)
or housing.wf1 (x ... housing sales, y ... housing starts).