III Makedonska brigada b.b., Skopje, 1000, Republic of Macedonia
Phone/Fax: +389 2 2463156, +389 2 2463159, info@uacs.edu.mk, www.uacs.edu.mk

Course Number: **Macroeconomic Modelling and Forecasting**
Semester: **Spring, 2012/2013**
Instructor: **Branimir Jovanovic (branimir.jovanovic@uniroma2.it)**
Credits:
Contact hours: **20 hours**
Learning hours:
Class Hours:
Prerequisite:

Books:

Books used in this course:

1. Brooks, Chris (2008), *Introductory Econometrics for Finance*, 2nd edition, Cambridge University Press
2. Hill, Griffiths and Lim (2008) *Principles of Econometrics*, 3rd Edition, John Wiley and Sons
3. Stock, James and Mark Watson (2006), *Introduction to Econometrics*, 2nd Edition, Pearson/Addison-Wesley
4. Eviews 7 User's Guide

Papers:

Required reading:

1. Stock, James and Mark Watson (2001) "Vector Autoregressions", *Journal of Economic Perspectives*, Volume 15, Number 4—Fall 2001—Pages 101–115
2. Rodrigo, G. Chris "Macro vs. Micro: The Economic Divide" (http://www.imf.org/external/pubs/ft/fandd/basics/bigsmall.htm)
3. Ouliaris, Sam: "Economic Models: Simulations of Reality" (http://www.imf.org/external/pubs/ft/fandd/basics/models.htm)

Other papers you may wish to read:

1. Woodford, Michael (1999), Revolution and Evolution in Twentieth-Century Macroeconomics, Paper prepared for the conference on "Frontiers of the Mind in the Twenty-First Century," Library of Congress, Washington, June 14-18, 1999.
2. Mankiw, Gregory (1990), "A Quick Refresher Course in Macroeconomics", *Journal of Economic Literature,* Vol. XXVIII (December 1990), pp. 1645-1 660

These two papers briefly tell the story of the 20th century Macroeconomics. They are intended for those who would like to specialize in Macro, and do not necessarily have to be read in details.

Course description:

This module is an extension of Econometric Analysis and Data Analysis. Its primary aim is to teach students to apply econometric techniques to macroeconomic problems, with the purpose to:

1. Describe macroeconomic phenomena;
2. Draw inference about macroeconomic relationships;
3. Forecast macroeconomic quantities;
4. Give policy recommendations.

It is heavily applied and these four tasks will be practically done on real world examples for Macedonia.

Learning objectives:

- To understand the main tasks of macroeconomic modelling;
- To understand the basic techniques for macroeconomic modelling;
- To become able to apply the techniques to the four tasks;
- To become able to write a short paper on all that.

Learning outcomes:

By the end of this course it is expected that the student will be able to:

1. Collect and prepare data needed for analysis of a certain macroeconomic issue;
2. Identify the most appropriate techniques for a certain task;
3. Do a rigorous quantitative analysis for a required task;
4. Identify the potential drawbacks of the analysis;
5. Write a well-articulated short paper.

Course delivery:

Class lectures will be supported by hands-on computer sessions aiming to collect certain data, analyze that data descriptively in spreadsheet software (like MS Excel) and in econometric software (like Eviews). Just like Data Analysis, the course will be very practical and applied. There will be 2 (easy) homeworks, and a final assignment. Lecture slides and handouts will be distributed to students in electronic form (possibly in hard-copy, as well). Students may be asked to read certain texts before (or during) the lectures.

Instructor's expectations from students:

- Attend class regularly.
- Participate interactively in the classes.
- READ ASSIGNED MATERIAL!
- Collaborate with the colleagues during the class exercises and with their team-mates for the final assignment.
- Be constructive during the classes, i.e. avoid disturbing other students or the teacher.
- Avoid anti-social behavior in College and anti-academic behavior in the classroom (i.e. plagiarism, cheating, etc.)
- Impose a self – discipline regarding Colleges rules and procedures.

Assessment:

1. Homework 1 – 20%;
2. Homework 2 – 20%;
3. Final assignment on econometric analysis of a relevant issue – 40% (teams of 2-3 people);
4. Subjective assessment of the teacher, on the grounds of home reading and performance during class discussions and exercises – 20%.

Programme

Day 1: **Refresher course in Applied Econometrics and introduction to Time Series Econometrics**

- What is econometrics
- Types of econometrics
- Regression – example, diagnostics, interpretation
- How is time series econometrics different?
    - Stationarity and unit roots

- Consequences of unit roots for econometrics: spurios regression
- Testing for unit roots
- What to do with non-stationarity – cointegration and first differencing
- Cointegration and Error Correction
- Engel-Granger approach to cointegration – intuition, with a simple example

Required reading before the class: Introduction and conclusion of Stock and Watson (2001)

Study material: Hill et al. (2008), Chapter. 12

Day2: **Univariate time series modeling and forecasting**

- White noise process
- AR (AutoRegressive) and MA (Moving Average) processes
- ARIMA (AutoRegressive Integrated Moving Average) modelling
  - Box-Jenkins approach with example in Eviews
- Forecasting
  - Example in Eviews: forecasting Macedonian inflation

Required reading before the class: 2 short texts from IMF

1. **Rodrigo "Macro vs. micro: The Economic Divide"** (http://www.imf.org/external/pubs/ft/fandd/basics/bigsmall.htm)

2. **Ouliaris: "Economic models: Simulations of Reality"** (http://www.imf.org/external/pubs/ft/fandd/basics/models.htm)

Study material: Brooks (2008) Chapter 5, Stock and Watson (2006) Chapter 14, Eviews user guide Chapter 21

Optional reading: Woodford (1999), Mankiw (1990) – these two papers briefly tell the story of the 20th century Macroeconomics. They are intended for those who would like to specialize in Macro, and do not necessarily have to be read in details

Homework 1 after this class

Day 3: **VAR – Vector AutoRegression (1)**

- Basics, estimation, endogeneity, reduced form and structural form, shocks
- Lag length selection, exogenous variables
- Granger causality, regression coefficients, impulse responses, variance decomposition
- Cholesky identification
- Examples with Macedonian data – is monetary policy in Macedonia effective (identification with Cholesky decomposition)

Study material: Hill et al. (2008), Chapter 13; Stock and Watson (2006), Chapter 16

Day 4: **VAR – Vector AutoRegression (2)**

- Different identification schemes
- Uses – forecasting, inference, policy analysis
- 2 examples with Macedonian data – is monetary policy in Macedonia effective (identification with alternative identification) and forecasting Macedonian GDP and inflation with a VAR

Required reading before the class: Stock and Watson (2001)

Study material: Hill et al. (2008), Chapter 13; Stock and Watson (2006), Chapter 16

Day 5: **Johansen and ARDL approaches to cointegration**

- Johansen – advantages, testing for cointegration, interpretation, drawbacks
- ARDL – advantages, example

Study material: Eviews 7 User's Guide Chapter 32

Homework 2 – after this class

Day 6: **Models in Eviews**

- Model object in Eviews
- 2 examples with Macedonian data: Old School Keynesian model and New Keynesian model

Study material: Eviews 7 User's Guide Chapter 34

CPC Coverage in terms of hours

1) Functional area
   A Marketing – 0 hour
   B Business finance – 0 hours
   C Accounting – 0 hours
   D Management – 0 hours
2) The Business environment
   A) Legal environment of Business – 0 hours
   B) Economics – 5 hours
   C) Business ethics – 0 hour
   D) Global dimensions of Business – 0 hours
3) Technical skills
   A) MIS/IT computing – 2 hour
   B) Statistics/Quantitative techniques – 13 hours
4) Integrative areas
   A) Business policy – 0 hours
   B) Internship – 0 hours

Class Conduct:
It is very impolite to use mobile phones during classes, for whatever reasons, and you wouldn't like to appear impolite, would you? The class starts promptly at the scheduled time, so if you are late, you may miss something important. Participation in the class is highly encouraged – feel free to interrupt the teacher at any time, if you have some question or a comment. This does not mean, however, that you can talk with other students all the time during the lectures - this is not just disruptive to your colleagues and the lecturer, but you can miss something important that the teacher has said. The language of instruction is English, so all our conversation into the class must be in English. After each session students are expected to study all the relevant material, read all the associated exercises and prepare assignment for the next class, when given.

Cheating and plagiarism in any form will result immediately in the grade F.

Grading:
C- or better is required to use a course either as a prerequisite or as a major requirement.
G.P.A. (Grade Point Average): is computed for each student using the quality points earned for each course taken. A G.P.A of at least 2.0 is required for transfer and to graduate from ACS.
I wish you an interesting and creative academic semester.

Academic Honesty
The American College Skopje has its personal integrity, which is presumed to be sufficient assurance in academic matters one's work is performed honestly and without unauthorized assistance. Plagiarism and

cheating are serious offences and may be punished by failure on the exam, paper or project; failure in the course; and/or expulsion from the faculty. Individuals are prohibited from selling or being paid for taking notes in any form (written, electronic, or otherwise) during this course to or by any person or commercial firm without the express written permission of the professor teaching this course.

Late Work:

There is NO PROVISION for late work on any assignment (i.e., late work is not accepted). It is strongly recommended you to have backup systems in place so that you can have all work completed on schedule. Having your work completed on schedule is a key to early success in your business career.
Late submissions are not accepted. Partial credit will NOT be given for late work.
Make-up tests are given in exceptional circumstances.

Approved by: Marjan Petreski
Date: 01/2013