ECG 752 – Time Series Econometrics – Spring 2015
SYLLABUS
Class Time: Tuesday and Thursday 8:30am-9:45am in Nelson Hall 1140

Instructor: Denis Pelletier
Office: 4162 Nelson Hall
Email: denis_pelletier@ncsu.edu
Web: http://www4.ncsu.edu/~dpellet
Office Hours: Tuesday 3:00pm-4:00pm, or by appointment.

Prerequisites: ECG(ST) 751 Econometrics.

Course Description: This is an advanced graduate course exploring econometric techniques for
the analysis of macroeconomic and financial time series data. The course provide a rigorous treat-
ment of the statistical properties of these techniques and also discussion of important practical
issues in their implementation.


Additional (non-required) textbooks:

dition, Springer.

Verlag.

- Wei, William W.S., 2006, Time Series Analysis – Univariante and Multivariate Methods,
second edition, Pearson.


Electronic reserve: Some material that can only be made available to the students registered for
this course will be made available through the library’s electronic reserve.

Grading:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Problem sets and computer assignments</td>
<td>20%</td>
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<tr>
<td>First midterm exam (Tuesday, February 17)</td>
<td>20%</td>
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<td>Second midterm exam (Tuesday, March 31)</td>
<td>20%</td>
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<tr>
<td>Final exam (Thursday, April 30, from 8:00am to 11:00am)</td>
<td>40%</td>
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The standard NCSU letter grading scale is the following:

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\begin{align*}
97 & \leq \text{A+} & \leq & 100 \\
93 & \leq \text{A} & < & 97 \\
90 & \leq \text{A-} & < & 93 \\
87 & \leq \text{B+} & < & 90 \\
83 & \leq \text{B} & < & 87 \\
80 & \leq \text{B-} & < & 83 \\
77 & \leq \text{C+} & < & 80 \\
73 & \leq \text{C} & < & 77 \\
70 & \leq \text{C-} & < & 73 \\
67 & \leq \text{D+} & < & 70 \\
63 & \leq \text{D} & < & 67 \\
60 & \leq \text{D-} & < & 63 \\
0 & \leq \text{F} & < & 60
\end{align*}
\]

At the full discretion of the instructor the grades might be adjusted upward at the end of the semester if the instructor judge that the exams were too difficult.

The material is divided into three blocks, hence three exams. Only the final exam is cumulative in nature. Exam questions will be taken from material covered in:

- the lecture notes and related classroom discussion,
- the textbook,
- handouts,
- the homework assignments.

The dates for the midterm exams are somewhat tentative and may change slightly according to the needs of the class or the instructor. The policy for the exams is that I do not give exams early or late barring special circumstances. For complete attendance and excused absence policies, please see http://policies.ncsu.edu/regulation/reg-02-20-03.

For each block there will be one analytical problem set and one computer assignment where you will have to use Matlab.

**Homework assignments:** The policy regarding homework assignments is that unless otherwise stated, they will be due at the beginning of class on the date assigned. Late assignments will not be accepted barring special circumstances. For complete attendance and excused absence policies, please see http://policies.ncsu.edu/regulation/reg-02-20-03. I expect the students to discuss the questions among themselves but each student must submit their own personal answers.

**Software:** The class will use Matlab, a matrix programming language, for the computer exercise part of the homework assignments. You need not have any prior experience with Matlab. It is available on the computers in Nelson Hall’s computer labs and probably elsewhere on campus.
There are several overview books on MATLAB and its functions. Two are “Matlab Guide” by D. Higham and N. Higham (elementary) and “Mastering Matlab 7” by Hanselman and Littlefield (more advanced). If you are new to matrix programming I suggest investing a few hours in going through such a book. I will provide sample code through the semester to help you complete the assignments. The language is easy to learn. The goal is not for you to become certified Matlab programmers. Matlab is a tool with which you will learn econometrics.

**Email:** I will often send emails to the whole class to distribute the assignments, answer keys, give instructions, ... To do so I will use an email alias created by Wolfware to send these emails. Through this alias, the emails will be sent to your unity email address, unless you told the Office of Internet Technology to send university emails to a different email address It is your responsibility to check this email account on a regular basis.

**Academic integrity, academic honesty and honor pledge:** Students are required to comply with the university policy on academic integrity found in the Code of Student Conduct found at http://policies.ncsu.edu/policy/pol-11-35-01. Also see http://policies.ncsu.edu/policy/pol-11-35-01 for a detailed explanation of academic honesty. Your signature on any test or assignment indicates “I have neither given nor received unauthorized aid on this test or assignment.”

**Accommodations for disabilities:** Reasonable accommodations will be made for students with verifiable disabilities. In order to take advantage of available accommodations, student must register with the Disability Services Office (http://www.ncsu.edu/dso), 919-515-7653. For more information on NC State’s policy on working with students with disabilities, please see the Academic Accommodations for Students with Disabilities Regulation at http://policies.ncsu.edu/regulation/reg-02-20-01.

**Outline of the course:**

1. Introduction to basic time series concepts.
2. Univariate time series processes: ARMA models.
3. Large sample theory for stationary processes.
6. Linear models for nonstationary data: deterministic and stochastic trends, cointegration.
9. Regime switching models.