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ECNS 513.01: Macroeconomic Theory

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UNIVERSITY OF MONTANA
Economics 513: Macroeconomic Theory
aka Forecasting

Course Information:

Semester: Spring 2019
Section: Section 01
Meeting time: TR 2:00-3:20
Classroom: LA 243
Credits: 3 credits
CRN: 30684

Instructor Information:

Instructor: Douglas Dalenberg
Office: LA 413
Email: doug.dalenberg@mso.umt.edu
Phone: 406-243-4406 (message only).
Office hours: T 10:00-10:50 and 12:30-1:50, R 12:30-1:50, or by appointment.

Course Description:

Modern macroeconomics is a broad and deep field. We will approach this course from an empirical perspective by focusing on the forecasting and time series tools that are often applied by macroeconomists. Statistical software will be used to assist us in handling of complex empirical problems and to demonstrate the use of statistical software in forecasting. The ultimate objective of the course is to familiarize the student with the tools used in forecasting by economists.

Prerequisites:

A statistics course such as STAT 216.

Required Texts:

Hyndman, Rob J. and George Athanasopoulos, (2018), *Forecasting Principles and Practice*, second edition available online as an open source text at <http://otexts.com/fpp2/>

Optional Software:

We will use R which is open source and available in LA 401 and FA 210 and many other campus labs. I will show you how to get access to R on your own computer for free. I prefer R Studio as my R interface, but you may use any interface you like. We will also use LaTeX which is also open source and I will show you how to access LaTeX on your own computer for free. There are many interfaces for LaTeX and you are free to use any interface you choose.

Moodle:

Data sets used in class and for homework will be available through Moodle.

Learning Outcomes:

Students who successfully complete ECNS 513 will be able to:

1. describe the forecasting techniques used by economists.
2. explain the issues associated time series data.
3. explain the issues associated with forecasting.
4. create forecasts using regression, filters, and ARIMA models and perform the relevant associated tests of forecasting models.
5. demonstrate proficiency with the R statistical software program in the realm of forecasting and the LaTeX document production software.

Assessment:

The weights for the course grade are:

Quizzes	36%	1/29, 2/12, 2/26, 3/12, 3/21, 4/16.
Homework Problems	40%	
Take-home Final Exam Due	24%	Monday, 4/29 at 1:10-3:10.

I will not use plus/minus grading so 100-90=A, 89-80=B, 79-70=C, 69-60=D, 59 and below=F.

Policies:

1. If you miss a quiz and you contact me prior to or immediately after the quiz, then we will make arrangements for dealing with the missing score (usually a make-up quiz). If I am not contacted promptly, then no makeup is possible. Homework is late if I receive it after I have finished grading the homework that was turned in at the deadline because at that point you are imposing a cost upon me. Late homework is penalized a portion of the points depending upon the cost it imposes on me.
2. If my office hours conflict with your schedule, see me for an appointment or try to catch me in my office by chance.
3. Whenever possible, and in accordance with civil rights laws, the University of Montana will attempt to provide reasonable modifications to students with disabilities who request and require them. Please feel free to setup a time with me to discuss any modifications that may be necessary for this course. For more information, visit the [Disability Services for Students](https://www.umt.edu/dss/) website (<https://www.umt.edu/dss/>).
4. Academic dishonesty will result in a score of zero for the work in question and possible university sanctions. All students need to be familiar with the [Student Conduct Code](http://www.umt.edu/student-affairs/dean-of-students/default.php) (<http://www.umt.edu/student-affairs/dean-of-students/default.php>).
5. The University sets deadlines for adding classes, dropping classes, changing grade options, and changing to or from audit status. These policies can be found at the [Registrar's web page](http://www.umt.edu/registrar/students/dropadd.php) (<http://www.umt.edu/registrar/students/dropadd.php>) while the actual dates for this term can be found on the [Registrar's calendar](https://www.umt.edu/registrar/PDF/201930-Official-Dates-and-Deadlines.pdf) (<https://www.umt.edu/registrar/PDF/201930-Official-Dates-and-Deadlines.pdf>).
6. I do not take attendance. The consequences of missing class are reflected in quiz and homework scores. I take material for the quizzes out of lecture, so if you do miss class you will want to fill those notes in.
7. While I encourage you to bring your laptop to class for using R and LaTeX, I do not recommend taking notes on a computer, but rather handwrite your notes. Please so not distract other students by looking at non-class web pages during class. I have read some of the research on computer note taking and am willing to discuss my interpretation of that research with you.
8. As a courtesy to your classmates, please set your cell phones on vibrate rather than ring and please leave the classroom to talk on a phone. You may text during class if it does not disturb those sitting near you and it does not disturb me. Absolutely no texting or cell phone use during

quizzes or exams. If you believe that you will need to leave during class, please sit where you will not bother others as you leave. A classroom is a community, so I trust you will act as a mature and responsible citizen and treat each other with respect and courtesy. Please do not interfere with the learning of your classmates. I will ask you to leave if you are interfering with others' learning and it would be very embarrassing for you.

Calendar:

This schedule of topics is subject to modification. All changes will be announced in class.

Week	Date:	Topic	Reading*	Quizzes
1	1/10	History and Books	<i>Term starts Thursday. HA chapter 1</i>	
2	1/15 1/17	Basic R and LaTeX	<i>HA chapter 2</i>	
3	1/22 1/24	Time Series Terminology	<i>HA chapter 3</i>	
4	1/29 1/31	Stationarity		Quiz 1 Tuesday (1/29)
5	2/5 2/7	Regression	<i>HA chapter 5</i>	
6	2/12 2/14	Regression		Quiz 2 Tuesday (2/12)
7	2/19 2/21	Seasonality	<i>HA chapter 6</i>	
8	2/26 2/28	Filters	<i>HA chapter 7</i>	Quiz 3 Tuesday (2/26)
9	3/5 3/7	Filters		
10	3/12 3/14	ARIMA	<i>HA chapter 8</i>	Quiz 4 Tuesday (3/12)
11	3/19 3/21	ARIMA		Quiz 5 Thursday (3/21)
	3/25- 3/29	Spring Break		
12	4/2 4/4	ARIMA	<i>HA chapter 8 again</i>	
13	4/9 4/11	ARIMA		
14	4/16 4/18	Combining Forecasts / Other Issues	<i>HA chapter 12</i>	Quiz 6 Tuesday (4/16)
15	4/23 4/25	Other Techniques	<i>HA chapters 4 and 11</i>	
16	4/29	Take-home Final Exam		Final Exam Due Monday 4/29, 1:10-3:10.

* HA refers to Hyndman and Athanasopoulos.