ECON 7801
ECONOMETRICS II

Fall 2017

Instructor:	Ivan Mendieta-Muñoz, Ph.D.	**Time:**	T & Th; 02:00PM-03:20PM
Email:	ivan.mendietamunoz@utah.edu	**Place:**	M LIB; Room 1160

Office: Room 213, Building 73, 332 South 1400 East.
Office Number: (+1) 801-213-6921.
Office Hours: T; 11:00AM-1:00PM.

Course Pages:

- Canvas

Prerequisites: ECON 7800; or an equivalent background.

This assumes that students have a working knowledge in econometric theory, matrix algebra and multivariate calculus.

Course Description and Objectives: This course concentrates on time series applications. Its primary purpose is to introduce you to a variety of state-of-the-art estimation techniques used in empirical macroeconometric research. A special emphasis will be put on multivariate time series analysis (VAR and VECM modeling). Non-linear time series models, state-space models and estimation techniques for panel data will also be handled if the time permits.

Textbook References:

- Enders, Walters. (2015). *Applied Econometric Time Series*. New York: Wiley. 4th Edition.

- Favero, Carlo. (2001). *Applied Macroeconometrics*. Oxford: Oxford University Press.

- Lütkepohl, Helmut. (2005). *New Introduction to Multiple Time Series Analysis*. Berlin: Springer.

- *Hamilton, James. (1994). *Time Series Analysis*. Princeton: Princeton University Press.

- *Hayashi, Fumio. (2000). *Econometrics*. Princeton: Princeton University Press.

Readings outside this text may also be assigned.

Exams and Grading Policy: The course grade will be based on two homework assignments; a final exam; and a final research paper submitted at the end of the semester.

Homework Assignments (20%) + Final Exam (40%) + Final Research Paper (40%)

The final research paper needs to be an econometric project of the student's own design. It could be an exercise in applying econometric techniques to some economic, social or financial issue amenable to empirical testing. It must be a time series application.

Your final report should be typewritten and follow conventional footnoting and bibliographic rules. It should be between 8 and 10 pages long, double-spaced. Papers more than 10 pages lose points. Your paper should briefly review the relevant literature. It should define measurable versions of the variables of interest and fit them into an econometric specification. It should apply appropriate estimation techniques, reporting the results clearly and concisely; and it should discuss the inferences that are justified from your results. Please do not include raw computer output.

There will be no make-up exams and late assignments will not get credit except in the cases of: a) medical emergencies; b) officially sanctioned University activities; and c) religious obligations. As indicated in PPM 9-7 Sec 15, the appropriate unit should provide a written statement for the reason of absence. In cases b) and c), students should get in touch with me at least one week before the exam and reschedule the exam. Students will not be assigned extra credit work to improve their grades. Senior class students' work will not be graded differently.

Grading system follows the university standards:

- Excellent, superior performance: A (90-100%), A- (85-89.9%)

- Good performance: B+ (80-84.9%), B (75-79.9%), B- (70-74.9%)

- Standard performance: C+ (65-69.9%), C (60-64.4%), C- (55-59.9%)

- Substandard performance: D+ (50-54.9%), D (45-49.9%), D- (40-44.9%)

- Unsatisfactory performance: E (0-39.9%)

Important dates:

NO CLASSES .... Tuesday-Thursday, September 12-14
Homework Assignment #1 .... Thursday, October 5
Fall Break .... Sunday-Sunday, October 8-15
Homework Assignment #2 .... Tuesday, November 21
Thanksgiving Break .... Thursday-Sunday, November 23-26
Final Research Paper .... Thursday, November 30
Revision Session (Final Exam) .... Thursday, December 7
Final Exam .... Friday, December 15: 1:00PM-3:00PM

Class Rules:

1. I encourage student cooperation in homework assignments. However, each student must present his or her own assignment. Duplication of the same assignment under different names is not acceptable and is considered cheating. Cheating in homework assignments or exams and other types of academic misconduct will be dealt with in accordance with the University regulations. Full details on procedures and penalties can be found here: http://regulations.utah.edu/academics/6-400.php#SECTION%20V. Punishments can be severe, so don't do it.

2. Come to class in time.

3. Read the assigned material in advance and familiarize with the subject before the lecture.

4. I will use Canvas for announcements, homework assignments, posting extra readings, etc. However, Canvas is not a substitute to attending class. It is your responsibility to keep up with the class.

5. Turn off your cell phones and remove them from your desk.

6. Do not believe any of the material you read in the textbook or elsewhere. Learn it well and critically.

7. Do not believe any of the material I present in class. Learn it well and critically.

Students with Disabilities: The Department of Economics at the University of Utah, seeks to provide equal access to its programs, services and activities for people with disabilities. If you need accommodations in this class, reasonable prior notice needs to be given to the instructor and to the Center for Disability Services (162 A. Ray Olpin Student Union Building, 581-5020 (V/TDD)) to make arrangements for accommodations (see also http://disability.utah.edu/).

Reminder: As the only institution in the state classified in the highest research category (R1), at the University of Utah you will have access to state-of-the-art research facilities and be able to be part of the knowledge creation process. You will have the opportunity to do research of your own with faculty who are leading experts in their field, engaging in programs that match your research interests. Further, you will interact with and often take classes with graduate students that provide an advanced understanding of the knowledge in your field.

Course Outline: The time schedule is approximate. We may slow down or speed up in accordance with the needs and demands of the class.

1. **Review of Univariate Time Series Analysis**

   - ARMA Models
     - Stationarity, Invertibility and Ergodicity
     - Moving Average and Autoregressive Processes
     - The Autocovariance-Generating Function
     - Estimation and Model Selection
     - Principles of Forecasting
   - Non-Stationary Time Series
     - Time Series Decomposition Methods
     - Trend- vs. Difference Stationary Series
     - Unit Root and Stationarity Tests

2. **Multivariate Time Series Analysis**

   - ARDL Models
   - Alternative Approaches to Macroeconometric Identification
   - VAR Models
     - Stationary Conditions and Properties
     - Estimation and Model Selection

- Granger Causality and Impulse Response Functions
- Structural VAR Models

- Cointegration and Error Correction
  - Short-run and Long-run Dynamics
  - Cointegration Tests
  - Estimation
- VECM models

3. **Non-linear Time Series Models**

- Structural Change and Non-linearity in Econometric Models
- Tests for Structural Change and Non-linearity
- Selected Non-linear Time Series Models: Threshold and Smooth Transition Models

CSBS EMERGENCY ACTION PLAN
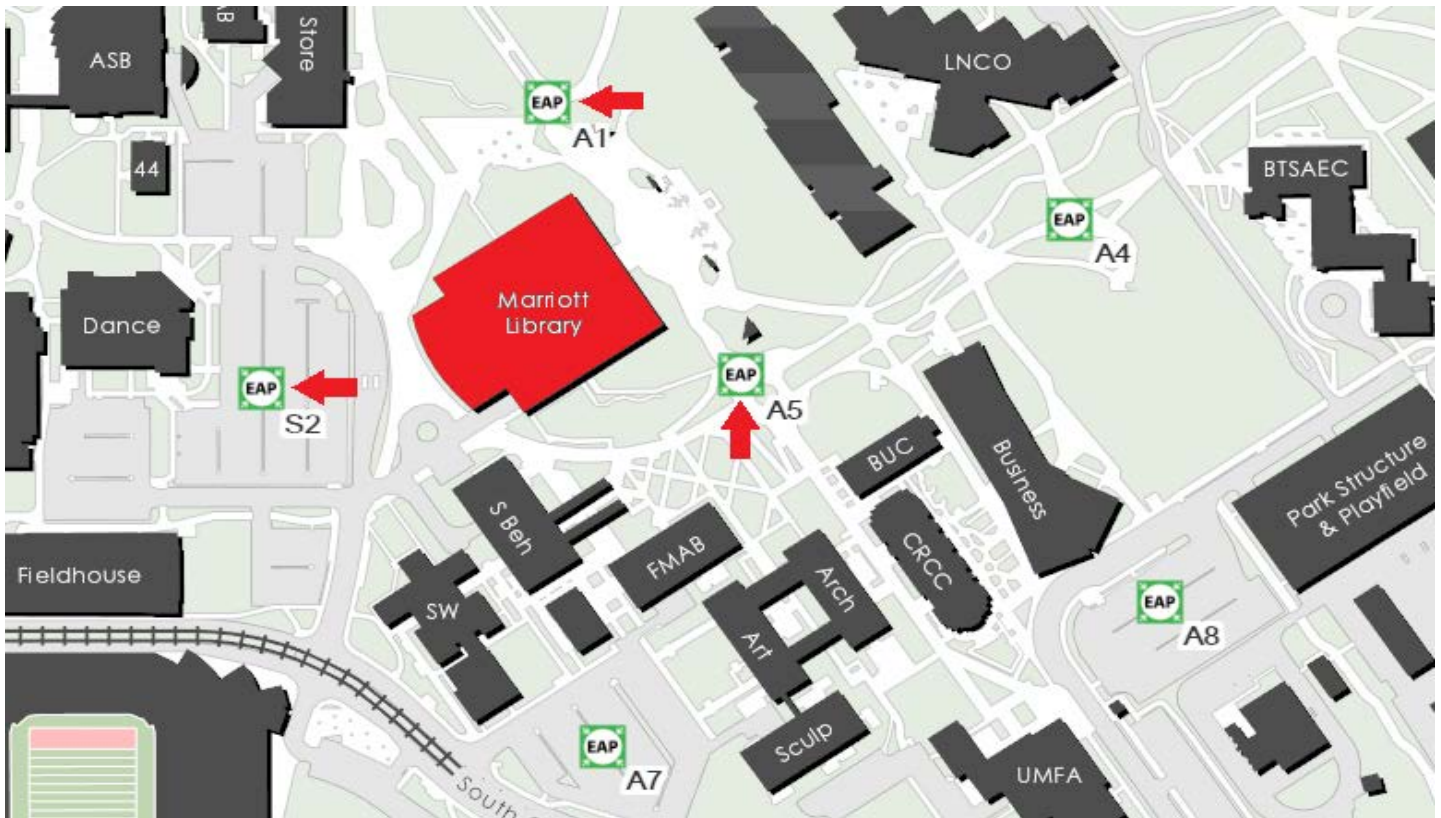
BUILDING EVACUATION

EAP (Emergency Assembly Point) – When you receive a notification to evacuate the building either by campus text alert system or by building fire alarm, please follow your instructor in an orderly fashion to the EAP marked on the map below. Once everyone is at the EAP, you will receive further instructions from Emergency Management personnel. You can also look up the EAP for any building you may be in on campus at http://emergencymanagement.utah.edu/eap.

CAMPUS RESOURCES

U Heads Up App: There's an app for that. Download the app on your smartphone at alert.utah.edu/headsup to access the following resources:

- **Emergency Response Guide:** Provides instructions on how to handle any type of emergency, such as earthquake, utility failure, fire, active shooter, etc. Flip charts with this information are also available around campus.

- **See Something, Say Something:** Report unsafe or hazardous conditions on campus. If you see a life threatening or emergency situation, please call 911!

Safety Escorts: For students who are on campus at night or past business hours and would like an escort to your car, please call 801-585-2677. You can call 24/7 and a security officer will be sent to walk with you or give you a ride to your desired on-campus location.

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