

Course Syllabus
Macroeconometrics (Time-Series Analysis)
Johns Hopkins University, Advanced Academic Programs
Fall Semester 2018

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Course No.: 440.614
Section No.: 51
Course Day: Monday
Course Hours: 6:00pm - 8:30pm
Course Room: 213

Course Objectives

To introduce students to:

- Difference equations
- Autoregressive-moving average processes
- Time series models of heteroskedasticity
- Non-stationary time series models
- Unit root tests
- Vector autoregression models
- Cointegration analysis

Description

This course is a graduate level course in Macroeconometrics, with focus on time-series econometrics. The course covers both theoretical time-series analysis, as well as applied econometrics. The emphasis of this course is on applied time-series analysis for the practicing econometrician with the use of econometrics software. Topics are highly quantitative but are presented at a level that should be comfortable for graduate students in economics. The course is self-contained and designed towards practicing economists and applied researchers.

Prerequisite

The prerequisites for this course are 440.602 – Macroeconometric Theory and Policy and 440.606 Econometrics. The material covered in this class will assume knowledge of the tools and techniques covered in those classes, including their respective prerequisites.

Textbook

The course textbook is *Applied Econometric Time Series*, by Walter Enders 4th ed. The course is complemented with notes from *Time Series Analysis*, by James D. Hamilton to include theoretical rigor.

- Required text: Applied Econometric Time Series, Walter Enders, 4th ed (Wiley).
- Optional text: Time Series Analysis, Hamilton (Princeton).

Software

Computer software is essential for estimating econometric models. Students are free to choose from various software packages when submitting assignments.¹ The course is designed to be used with SAS software, which is available free (SAS's web-based version, SAS Studio) for educational purposes without the need to download software. SAS software is used to illustrate examples, and SAS programming commands are taught in class to successfully complete course assignments. Please note that the datasets from the course textbook are readily available for download in SAS format. Macroeconomists tend to prefer EViews for time series analysis, as such a selected number of course examples are presented in EViews.

Assignments & Submissions

The course is structured around four thorough problem sets, which are given heavy weight in the grading scheme. Assignments are due by the end of class. In case of emergencies, in which one is unable to attend class, I do accept an electronic version of the assignment via

¹<http://advanced.jhu.edu/academics/graduate-degree-programs/applied-economics/activities/software/>

email with a midnight deadline for potential full credit. I can accept an assignment one day late via email for potential half credit. I must receive the original hardcopy by the next class meeting, otherwise I award zero credit for the entire assignment.

Midterm & Final Exam

There is one midterm and one final exam in this course, which are given equal weight and are labeled Exam #1 for the midterm and Exam #2 for the final exam. The final exam is not cumulative in the sense that the same questions on the midterm will not appear on the final exam. However, the final exam is cumulative in the sense that the concepts learned prior to the midterm exam are necessarily essential for successful performance on the final exam. There are no “trick” questions on the exam. The purpose of each exam is to test understanding of the material. Laptop computers are not allowed on the final exam.

Make-up Exams & Extra Credit

None.

Grading Plan

Coursework is weighted as follows:

Assignments (5% each)	20%
Midterm (Exam #1)	40%
Final Exam (Exam #2)	40%
Total	100%

Schedule

The following is a list of topics that will be covered in the course:

Week No.	Day	Date	Topic	Chap.	Note
Week 1	Mon	Sep 10	Intro. to Time Series & software	Notes	
Week 2	Mon	Sep 17	Difference Equations	Chap. 1 & Notes	
Week 3	Mon	Sep 24	Stationary Times-Series Models	Chap. 2 & Notes	
Week 4	Mon	Oct 1	Moving Average Processes	Chap. 2 & Notes	Assign. #1 Due
Week 5	Mon	Oct 8	Autoregressive Processes	Chap. 2 & Notes	
Week 6	Mon	Oct 15	ARMA Processes (MLE)	Chap. 2 & Notes	
Week 7	Mon	Oct 22	Modeling Volatility & Review	Chap. 3 & Notes	Assign. #2 Due
Week 8	Mon	Oct 29	Midterm Exam		
Week 9	Mon	Nov 5	Modeling Volatility (cont.)	Chap. 3 & Notes	
Week 10	Mon	Nov 12	Models with Trend	Chap. 4 & Notes	
Fall Recess Nov. 19 - 25					
Week 11	Mon	Nov 26	Multiequation Time-Series Models	Chap. 5 & Notes	Assign # 3 Due
Week 12	Mon	Dec 3	Cointegration & ECM	Chap. 6 & Notes	
Week 13	Mon	Dec 10	Nonlinear Models & Review	Chap. 7 & Notes	
Finals	Mon	Dec 17	Final Exam (6:00pm - 8:30pm)		Assign #4 Due

Academic Integrity

Cheating is not tolerated and will result in an automatic failing grade for the course. Students are expected to behave as professionals and adhere to the University's Academic and Ethical Code of Conduct: <http://advanced.jhu.edu/wp-content/uploads/2013/01/AAP1101_CodeofConduct.pdf>.

University Policies

General

This course adheres to all University policies described in the academic catalog. Please pay close attention to the following policies:

Students with Disabilities

Johns Hopkins University is committed to providing reasonable and appropriate accommodations to students with disabilities. Students with documented disabilities should contact the coordinator listed on the Disability Accommodations page. Further information and a link to the Student Request for Accommodation form can also be found on the Disability Accommodations page (available on Blackboard).

Ethics and Plagiarism

JHU Ethics Statement: The strength of the university depends on academic and personal integrity. In this course, you must be honest and truthful. Ethical violations include cheating on exams, plagiarism, reuse of assignments, improper use of the Internet and electronic devices, unauthorized collaboration, alteration of graded assignments, forgery and falsification, lying, facilitating academic dishonesty, and unfair competition. Report any violations you witness to the instructor. Read and adhere to JHU's Notice on Plagiarism (available on Blackboard).

Dropping the Course

Students are responsible for understanding the university's policies and procedures regarding withdrawing from courses found in the current catalog. Students should be aware of the current deadlines according to the Academic Calendar (available on Blackboard).

Getting Help

Students have a variety of methods to get help on Blackboard. Please consult the resource listed in the "Blackboard Help" link for important information. If students encounter technical difficulty in completing or submitting any online assessment, please immediately contact the designated help desk listed on the AAP online support page. Also, contact the instructor at the email address listed in the syllabus.