American University of Armenia

Manoogian Simone College of Business and Economics

Time Series Analysis

Syllabus

Course number and title:	ECON312 Time Series Analysis
Number of credits:	1 credit
Term and year:	Spring 2024
Class schedule:	Tue, 15:00-17:45
Classroom:	
Moodle:	Moodle Course ID: 1471
Instructor:	Narek Ohanyan, PhD
E-mail:	narek.ohanyan@aua.am
Office location:	230W
Office hours:	meetings by appointment
Pre-requisites:	Econ 300, Econ 310
Course description:	This course is an introduction to data analysis and econometric modeling using applications in finance and time series. The course uses concepts from microeconomics, finance, mathematical optimization, data analysis, probability models, statistical analysis, and econometrics. The course will be 5 weeks long. Each week consists of one 150 minutes lecture. Quantitative methods involve basic matrix algebra. Statistical topics include probabilities, expectation, joint distributions, covariance, normal distribution, sampling distributions, estimation and hypothesis testing, data analysis, linear regression, time series methods and simulations. There will be weekly frequent homework assignments requiring STATA programming. Students will work independently and periodically in groups to complete problem sets and group projects. Students will be graded on quizzes/problem sets, midterm and final exams. The course qualifies for all MSE tracks.
Required materials:	Hill, Griffiths, & Lim (2011). Principles of Econometrics, 4th edition.
Additional reading:	Other materials will be provided through the Moodle class page.

Schedule and topics: The schedule may be slightly different (prior notification will be made.)

Week	Topic	Reading	Other Tasks
1	Dynamic Nature of Relationships, Serial Correlation	Chapter 9	
2	Estimation with Serially Correlated Errors	Chapter 9	HA1
3	Autoregressive Distributed Lag Models	Chapter 9	Quiz 1
4	Unit Root Tests for Stationarity	Chapter 12	HA2
5	Co-integration, Error Correction Models	Chapter 12	Quiz 2
	Final exam		

Course Structure: The course is organized around classes that will meet once a week. Students are expected to read assigned textbook chapters prior to the class meeting. Classes will be a combination of discussions and lecturing.

Evaluation: Student learning will be evaluated on the basis of the following weighted components:

Home assignments	20%
Quizzes	40%
Research paper	40%

Attendance: Students are expected to attend all classes and actively participate. Students must inform the instructor of their inability to attend class regardless of the reasons.

Homework: Several homework assignments will be given on the topics covered. Homework should be typesetted in Latex and submitted via the Moodle page.

Late submissions up to 1 day are allowed but are penalized 50%.

Quizzes: There will be 2 quizzes as scheduled above. Instructions per quiz will be communicated beforehand.

Research Paper: Students must write a research paper, and perform an in-depth analysis of a particular problem, using appropriate time series analysis methods.

Grading Scale:

Letter Grade	Max	Min	Grade Points
A+	100.00 %	97.00 %	4
A	96.99 %	93.00 %	4
A-	92.99 %	90.00 %	3.70
B+	89.99 %	87.00 %	3.30
B	86.99 %	83.00 %	3.00
B-	82.99 %	80.00 %	2.70
C+	79.99 %	77.00 %	2.30
C	76.99 %	73.00 %	2.00
C-	72.99 %	70.00 %	1.70
D+	69.99 %	67.00 %	1.30
D	66.99 %	63.00 %	1.00
D-	62.99 %	60.00 %	0.70
F	59.99 %	59.00 %	0

Make-ups: There is no make-up for exams and quizzes except for severe emergencies when students are unable to physically come to the Campus. Any emergency reason with convincing evidence for missing a class, homework, quiz, or exam should be presented to the instructor within a week after the missed activity. Vacations/holidays or reasons of personal convenience do NOT constitute valid excuses.

Special Needs: Students requiring special accommodations for learning should contact the Center for Student Success by the end of the Drop/Add period with such requests. studentsuccess@aua.am, http://studentsuccess.aua.am/disability-support-services/

Academic integrity: Any breach of academic honesty will be punished to the fullest extent. Please ask or refer to the student code of ethics if in doubt: https://studentsuccess.aua.am/student-code-of-ethics/.

Grade Appeal: Students are entitled to appeal grades in line with the university's Grades Policies policy which is available online at http://policies.aua.am**.**

Student Learning Outcomes

Course learning outcomes	Student learning outcomes	Program Goals
The course is intended to expose students to important Financial and Econometric concepts. This course will further develop an understanding of Financial markets, Portfolio theory, and asset pricing. Topics include asset return, econometric modeling using real data, and time series.	Explaining and applying fundamentals of Econometric theory. Collecting and analyzing economic data. Producing well-reasoned solutions related to economic issues and public policy. Engaging in economic decision-making. Producing and delivering professional reports and presentations. Thinking critically and creatively, conceptualizing real-world problems from different perspectives.	Equip students with theoretical, and quantitative skills, and analytical abilities to investigate and solve economic problems. Prepare students for careers and advanced studies in a wide range of economic fields. Provide students with a broad foundation of knowledge and skills and cultivate a commitment to life-long learning. Develop articulate, conscientious leaders.