Online Course Syllabus

Syllabus for Macroeconometrics 440.614
Fall 2017

Advanced Academic Programs
Zanvyl Krieger School of Arts and Sciences
Johns Hopkins University

Section 1
Professor, Course Information, and Objectives

Professor:	Brendan Epstein, Ph.D.
Telephone Number:	TBA.
Email Address:	bepstei7@jhu.edu
Office Hours:	TBA.
About your Instructor:	Website: https://sites.google.com/site/brendanepstein/ (I am a former Senior Economist at the Board of Governors of the Federal Reserve System in Washington, DC, where I worked for nearly six years before taking a full-time academic position. My specialization within the discipline of Economics is at the intersection of International Economics, Labor Economics, and Macroeconomics.

Course Description

This course focuses on the practical uses of time-series econometrics in a macroeconomic context. The topics covered include autoregressive-moving average processes, non-stationary time series models, unit root tests, vector autoregression models, and cointegration analysis.

Prerequisites: 440.602 (Macroeconomic Theory and Policy); 440.606 (Econometrics).

Course Goals and Learning Objectives

By the end of this course:
- You will be functional in the theoretical and applied tools used by professional economists to analyze time series data.
- You will be able to execute and assess analysis of time series data in univariate and multivariate applied contexts.
- You will be fluent in the statistical software Stata and, in particular, its time series applications. **I assume no prior knowledge of Stata, so on this front the course is self-contained and I will be teaching you everything you need to know from the ground up.**

Section 2
Course Materials

Textbook

Required: "Introduction to Time Series Using Stata," by Sean Becketti, Stata Press, 1st Edition. ISBN-10: 1429278439. ISBN-13: 978-1597181327. (Note: all lecture notes—see below—are based off this book.)

Other Readings

Required: lecture notes (available on the course website). These lecture notes will often build directly on the textbook foundations. Note: **understanding the assigned textbook readings is necessary but by no means sufficient for doing well in this class.**

Software

This class will make heavy use of Stata, and you will need to use Stata for examinations. As such, you must have access to Stata. The University offers two ways through which you can gain access to Stata:

Stata is available from JHU via the MyJLab virtual lab.

This link shows the list of all available software from the MyJLab virtual lab.

http://studentaffairs.jhu.edu/computing/computing-on-campus/computer-lab/available-software/

Students must use the JHU VPN service to connect to MyJlab from off campus. This link provides instructions on how to use the JHPulse VPN service.

https://portalcontent.johnshopkins.edu/JHPulse/index.html

This link provides instructions on how to connect to MyJLab. You have to download and install a CITRIX RECEIVER client software first.

http://studentaffairs.jhu.edu/computing/computing-on-campus/computer-lab/myjlab/

Stata is available for purchase via the Stata Campus GradPlan™

If you decide to purchase Stata, going with the IC version is more than sufficient for the datasets we will be using in class. (*Note: I am able to provide technical assistance for purchased versions of Stata but not so for the MyJLab version.*)

Specific Technology Requirements and Skills for this Course

Learning online requires some basic knowledge of computer technology. At a minimum, you need to be able to:
- Navigate in and use Blackboard; the Blackboard Student Orientation course on your "My Institution" page;
- Create and save MS Word documents; see MS Word training and tutorials for PC users (all versions); Word Help for Mac users;
- Find basic resources on the Internet;
- Create and organize files & folders on your computer;
- Send, receive, and manage email;
- Have access to a scanner or scanning app in order to be able to submit assignments in .pdf format.

Section 3

About this Course

Course Topics

- <u>Lesson 1</u> (encompasses Week 1 and Week 2 of the class, and therefore—see below—Discussion 1 and Discussion 2 of the class: August 28 – September 10): **The Basic Building Blocks**.

- <u>Lesson 2</u> (encompasses Week 3 and Week 4 of the class, and therefore—see below—Discussion 3 and Discussion 4 of the class: September 11 – 24): **Difference Equations and Filtering of Time-Series Data**.

- <u>Lesson 3</u> (encompasses Week 5 and Week 6 of the class, and therefore—see below—Discussion 5 and Discussion 6 of the class: September 25 – October 8): **Autocorrelated Disturbances and ARMA models.**

- <u>Lesson 4</u> (encompasses Week 7 of the class, only, and therefore—see below—Discussion 7 of the class, only: October 9 – 15): **Exam 1**.

- <u>Lesson 5</u> (encompasses Week 8 and Week 9 of the class, and therefore—see below—Discussion 8 and Discussion 9 of the class: October 16 – 29): **Univariate Time Series.**

- <u>Lesson 6</u> (encompasses Week 10 and Week 11 of the class, and therefore—see below—Discussion 10 and Discussion 11 of the class: October 30 – November 12): **Multivariate Time Series**.

- <u>Lesson 7</u> (encompasses Week 12 and Week 13 of the class, and therefore—see below—Discussion 12 and Discussion 13 of the class: November 13 – December 3): **Nonstationary Time Series.**

- <u>Lesson 8</u> (encompasses Week 14 of the class, only, and therefore—see below—Discussion 14 of the class, only: December 4 – 10): **Exam 2**.

Directions for Students

First Step: Carefully review the remaining sections of the syllabus. Then, go our Blackboard site, click on the **Welcome! (Start Here)** button, and thoroughly review the information there.

- Once you feel that you are ready to dive into the first week's activities, click on the **Lessons** button on the left-side navigation menu. Then, click on **Lesson 1** to begin.
- **NOTE: Lessons will be posted on a rolling basis and will therefore become available on the first day of each relevant week of classes (see schedule below).**

Section 4
Assessments and Grading Policy

Assignments

Assignment	Due Date	Percentage Points
Lesson-1 Homework	September 10th at 11:59 pm Eastern Standard time	8
Lesson-2 Homework	September 24th at 11:59 pm Eastern Standard Time	8
Lesson-3 Homework	October 8th at 11:59 pm Eastern Standard Time	8
Exam 1 (covers materials from Lessons 1 through 3)	October 15th at 11:59 pm Eastern Standard Time (the exam is timed and you will have 5 hours to complete it as of the time you choose to begin)	22
Lesson-5 Homework	October 29th at 11:59 pm Eastern Standard Time	8
Lesson-6 Homework	November 12th at 11:59 pm Eastern Standard Time	8
Lesson-7 Homework	December 3rd at 11:59 pm Eastern Standard Time	8
Exam 2 (covers material from Lessons 5 through 7, only, so not explicitly cumulative; however, you will not be able to solve the exam without knowledge of all of the material building up to it)	December 10th at 11:59 pm Eastern Standard Time (the exam is timed and you will have 5 hours to complete it as of the time you choose to begin)	22
Course Engagement You are required to participate in course discussions.	14 total discussions each worth 1.12 percentage points; see below for details.	8
Total		100

Grading

Each homework and exam is worth 100 points total. Each discussion is worth 100 points total, and your final discussion grade will be equal to the simple average of your 14 online discussion grades. As such, your **final numerical grade** in the class can sum up to 100 points, maximum, and is equal to the following weighted sum:

0.08*(Lesson-1 Homework grade)

+ 0.08*(Lesson-2 Homework grade)

+ 0.08*(Lesson-3 Homework grade)

+ 0.22*(Exam-1 grade)

+ 0.08*(Lesson-5 Homework grade)

+ 0.08*(Lesson-6 Homework grade)

+ 0.08*(Lesson-7 Homework grade)

+ 0.22*(Exam-2 grade)

+ 0.08*(simple average of 14 discussion grades).

Grading rubric for "topical" discussions:

- 86-100 points. Applies critical analytical thinking within the discipline of Economics to the discussion in a way that is original and that constructively moves the discussion forward.
- 61-85 points. Clarifies or seeks clarification of ideas that have already been expressed in a way that is not completely original.
- 46-60 points. Attempts to apply critical analytical thinking within the discipline of Economics, but in a way that does not quite get it right.
- 20-45 points. Makes a casual observation that someone outside the discipline of Economics could have made, but that does not contribute at least marginally to the discussion.
- Between 10 and 19 points.
  - Makes a casual observation that someone completely unfamiliar with the discipline of Economics could have made and that is very unlikely to add to anyone's understanding of the issue at hand.
  - Rehashes ideas that have already been well-established in a way that adds little or nothing of value to the discussion.
  - Misses the point of the question/discussion/topic at hand.
  - Introduces confusion into the discussion in a way that is counterproductive.
- Between 1 and 9 points.
  - Exposition is so unclear that people cannot be sure what is being said after rereading the comment.
  - Exposition is comprehensible, but marred by multiple fundamental typos and/or grammatical errors that are beneath the dignity of a professional Masters degree program.
  - Comment is padded with unnecessary verbiage that obscures the essential point.
  - Comment's reasoning is marred by faulty logic and/or factual inaccuracies.
  - Comment is overly long multi-paragraph essay, making multiple points rather than a single focused contribution to the discussion.
- 0 points. No timely participation, trolling, or inappropriate comments for a professional environment. Or, comment is clearly made with the intention of getting credit, only, and as such completely lacks relevant and/or appropriate content (avoiding this situation is easy: you need to be on top of the material and engaged in class).

Notes on Curving and Conversion to Letter Grades

No letter grades will be given for individual assignments. The only letter grade that you will receive will be that for your final grade in the course. I will curve **final numerical scores** (see above) so that they map into **total effective points** (see below) in a way that the final average grade in the class is a B+.

Letter Grade	Total Effective Points
A+	98 to 100
A	94 and less than 98
A-	90 and less than 94
B+	88 and less than 90
B	84 and less than 88
B-	80 and less than 84
C	70 and less than 80
F	0 and less than 70

Assignment Guidelines

How should assignments be submitted and what does the work entail?

All exam and homework solutions should be submitted via Blackboard per the instructions posted online.

When will assignments be due?

Assignment and activity due dates are listed in this syllabus and the weekly checklists. I will notify you of any changes via an announcement in your online classroom.

When will completed assignments be returned?

I will aim to return assignments to you within 7 days following the due date. You will receive feedback under the My Grades link in the left-hand menu of your course.

What is the policy for late assignments?

You should contact me in advance if you think you cannot meet an assignment deadline. However, if an assignment is late and you have not made prior arrangements with the me regarding this situation the assignment score will be zero. Both anticipated and unanticipated late assignments will only be accepted given a reasonable and documented excuse, such as a health or work issue.

Time Management Expectations

Because this is a graduate-level course (and an advanced elective) that is offered in a condensed format, the rigor and time commitment is *much* higher than a traditional 14-week semester course. It is expected that you look ahead to schedule your time. Plan to complete coursework across several days of the week rather than all in one day.

Be sure to review the assignment directions at the beginning of the course so that you can plan your time accordingly. Please seek help before becoming frustrated and spending a significant amount of time to resolve any one issue that may come up.

Section 5
Course Communication Policy

Network Etiquette (i.e. "Netiquette")

In all textual online communication it's important to follow proper rules of netiquette.

What is netiquette? Simply stated, it's network etiquette—that is, the etiquette of cyberspace. And "etiquette" means the social and cultural norms of communicating with others in a proper and respectful way. In other words, netiquette is a set of rules for behaving and interacting properly online.

The Netiquette "Core Rules" linked below are a set of general guidelines for cyberspace behavior. They probably won't cover all situations, but they should give you some basic principles to use in communicating online.

For Netiquette Core Rules visit The Core Rules of Netiquette web page.

Contacting the Professor

The professor for this course is Brendan Epstein (bepstei7@jhu.edu).
Feel free to contact your professor with any comments, questions, or concerns you may have. You will receive a response within 24-72 hours.

All email messages will be sent to you via your JHU email account, so you should be in the habit of checking that account every day or you should ensure that your JHU email account properly forwards messages to another account of your choice.

Section 6

Course Protocols

How will you know about changes to the course?

Frequently, you will find new messages posted in the Announcements, which contain information about current course activities that you are working on and any changes to the course. Please check announcements every time that you log into your online course.

How should you communicate with others in this course?

You should communicate as often as you like with your classmates and with your professor. The majority of communication will take place within the Discussion forums. If you want to discuss something with your classmates, please post the communication you wish to engage in with others in the Discussion form titled "Communication Between Students."

Are there any requirements for sending e-mail messages?

When you send an e-mail message to the professor or to another participant in the course, please observe the following guidelines:

- Include the title of the course in the subject field (e.g., JHU Macroeconometrics).
- Keep messages concise, and check spelling and grammar.
- Send longer messages as attachments.
- Sign your full name (the sender's name is not always obvious from the email).

Section 7
Course Topics, Activities and Schedule

Tentative Course Schedule

Important Note: Activity and assignment details will be explained in detail within each week's corresponding learning module. If you have any questions, please contact your instructor.

Less on	Dates	Topics	Activities	Assessments & Due Dates
1	August 18 – September 10 (encompasses Week 1 and Week 2 of the course).	The Basic Building Blocks.	Read pages 1 through 49 of Becketti, chapter 1 ("Just enough Stata"). Read the Lesson-1 lecture notes. Go over Lesson-1 Panopto videos. Submit Lesson-1 Homework. Participate in Discussions 1 and 2.	Participate in Discussions 1 and 2 by September 10 at 11:59 pm Eastern Standard Time. Submit Lesson-1 Homework by September 10 at 11:59 pm Eastern Standard Time.
2	September 11 – 24 (encompasses Week 3 and Week 4 of the course).	Difference Equations and Filtering of Time-Series Data.	Read pages 49 through 69 of Becketti, chapter 1 ("Just enough Stata") and read Becketti chapter 2 ("Filtering time-series data"). Read the Lesson-2 lecture notes. Go over Lesson-2 Panopto videos. Review solutions to Lesson-1 Homework. Submit Lesson-2 Homework. Participate in Discussions 3 and 4.	Participate in Discussions 3 and 4 by September 24 at 11:59 pm Eastern Standard Time. Submit Lesson-2 Homework 2 by September 24 at 11:59 pm Eastern Standard Time.
3	September 25 – October 8 (encompasses Week 5 and Week 6 of the course).	Autocorrelated Disturbances and ARMA models.	Read Becketti chapter 5 ("Autocorrelated disturbances"). Read the Lesson-3 lecture notes. Go over Lesson-3 Panopto videos. Review solutions to Lesson-2 Homework. Submit Lesson-3 Homework. Participate in Discussions 5 and 6.	Participate in Discussions 5 and 6 by October 8 at 11:59 pm Eastern Standard Time. Submit Lesson-3 Homework by October 8 at 11:59 pm Eastern Standard Time.

4	October 9 – 15 (encompasses Week 7 of the course, only).	Exam 1.	Review Solutions to Lesson-3 Homework. Participate in Discussion 7.	Submit solutions to Exam 1 by October 15 11:59 pm Eastern Standard Time (the exam is timed and you will have 5 hours to complete it as of the time you choose to begin). Participate in Discussion 7 by October 15 at 11:59 pm Eastern Standard Time.
5	October 16 – 29 (encompasses Week 8 and Week 9 of the course).	Univariate Time Series.	Read Becketti, chapter 6 ("Univariate time-series models"), Becketti, chapter 7 ("Modeling a real-world time series") and Becketti, chapter 8 ("Time-varying volatility"). Read the Lesson-5 lecture notes. Go over Lesson-5 Panopto videos. Submit Lesson-5 Homework. Participate in Discussions 8 and 9.	Participate in Discussions 8 and 9 by July 4 at 11:59 pm Eastern Standard Time. Submit Lesson-5 Homework by October 29 at 11:59 pm Eastern Standard Time.
6	October 30 – November 12 (encompasses Week 10 and Week 11 of the course).	Multivariate Time Series.	Read Becketti, chapter 9 ("Models of multiple time series"). Read the Lesson-6 lecture notes. Go over Lesson-6 Panopto videos. Review solutions to Lesson-5 Homework. Submit Lesson-6 Homework. Participate in Discussions 10 and 11.	Participate in Discussion 10 and 11 by November 12 at 11:59 pm Eastern Standard Time. Submit Lesson-6 Homework by November 12 at 11:59 pm Eastern Standard Time.
7	November 13 – December 3 (encompasses Week 12 and Week 13 of the course).	Nonstationary Time Series.	Read Becketti, chapter 10 ("Models of nonstationary time series"). Read the Lesson-7 lecture notes. Go over Lesson-7 Panopto videos. Review solutions to Lesson-6 Homework.	Participate in Discussions 12 and 13 by December 3 at 11:59 pm Eastern Standard Time. Submit Lesson-7 Homework by August 8 at 11:59

			Submit Lesson-7 Homework. Participate in Discussions 12 and 13.	pm Eastern Standard Time.
8	December 4 – December 10 (encompasses Week 14 of the course, only).	Exam 2.	Review solutions to Lesson-7 Homework. Participate in Discussion 14.	Submit solutions to Exam 2 by December 10 at 11:59 pm Eastern Standard Time (the exam is timed and you will have 5 hours to complete it as of the time you choose to begin). Participate in Discussion 14 by December 10 at 11:59 pm Eastern Standard Time.

Section 8
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.

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.

Dropping the Course

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

Getting Help

You have a variety of methods to get help on Blackboard. Please consult the resource listed in the

"Blackboard Help" link for important information. If you 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 your instructor at the email address listed in the syllabus.

Copyright Policy

All course material are the property of JHU and are to be used for the student's individual academic purpose only. Any dissemination, copying, reproducing, modification, displaying, or transmitting of any course material content for any other purpose is prohibited, will be considered misconduct under the JHU Copyright Compliance Policy, and may be cause for disciplinary action. In addition, encouraging academic dishonesty or cheating by distributing information about course materials or assignments which would give an unfair advantage to others may violate AAP's Code of Conduct and the University's Student Conduct Code. Specifically, recordings, course materials, and lecture notes may not be exchanged or distributed for commercial purposes, for compensation, or for any purpose other than use by students enrolled in the class. Other distributions of such materials by students may be deemed to violate the above University policies and be subject to disciplinary action.

Code of Conduct

To better support all students, the Johns Hopkins University non-academic Student Conduct Code has been integrated and updated to include all divisions of the University. In addition, it is important to note that all AAP students are still accountable for the Code of Conduct for Advanced Academic Programs.

Title IX

Confidentiality and Mandatory Reporting

As an instructor, one of my responsibilities is to help create a safe and inclusive learning environment on our campus. I also have mandatory reporting responsibilities related to my role as a Responsible Employee under the Sexual Misconduct Policy & Procedures (which prohibits sexual harassment, sexual assault, relationship violence and stalking), as well as the General Anti-Harassment Policy (which prohibits all types of protected status based discrimination and harassment). It is my goal that you feel able to share information related to your life experiences in classroom discussions, in your written work, and in our one-on-one meetings. I will seek to keep information you share private to the greatest extent possible. However, I am required to share information that I learn of regarding sexual misconduct, as well as protected status based harassment and discrimination, with the Office of Institutional Equity (OIE). For a list of individuals/offices who can speak with you confidentially, please see Appendix B of the JHU Sexual Misconduct Policies and Laws.

For more information on both policies mentioned above, please see: JHU Relevant Policies, Codes, Statements and Principles. Please also note that certain faculty and other University community members also have a duty as a designated Campus Safety Authority under the Clery Act to notify campus security of certain crimes, as well as a duty under State law and University policy to report suspected child abuse and/or neglect.