



73 103: SYLLABUS

PROFESSOR ARIEL ZETLIN-JONES

Introduction: Welcome to 73-103 Principles of Macroeconomics! This course is an introduction to the fascinating subject of macroeconomics. Macroeconomics builds on microeconomics and we will build on the microeconomics that you studied in 73-102 Principles of Microeconomics. But whereas microeconomics is granular with a focus on individual behavior, macroeconomics concerns the economics of large populations. This semester we will plunge into this subject and, along the way, consider the sources of business cycles, the evolution of inequality, the impact of robots and AI on the economy, the emergence of cryptocurrencies, and the potential for successful tax reform.

This syllabus describes the nuts and bolts of the class. Please read it. No, really, please read it. Below, I describe who we are and where and when we do things. Then I address what we will do and what (I hope) you will get out of this course. After that I describe the mechanics and rules of the course, how to get the most out of the course, and a time table for the rest of the semester.

Instructor

Professor Ariel Zetlin-Jones

E-mail: azj@andrew.cmu.edu

Office: TPR 5141

Office Hours: MW 3.00-5.00pm



Lectures

Lecture 1: M/W 12:30 p.m. - 1:20 p.m. in Tepper Quad 2111

**Recitations: Leaders, Times, & Locations**

Please refer to the university's [Schedule of Classes](#) for the official listing of course and recitation times and locations.

Recitation – Fridays, 12:30 p.m. - 1:20 p.m.

<u>Recitation Section</u>	<u>Location</u>	<u>Recitation Leader</u>	<u>Andrew E-mail</u>
B	TPR 2701	Andre Mouton	amouton@andrew.cmu.edu
C	TPR 3801	Majid Mahzoon	mmahzoon@andrew.cmu.edu

Recitation – Fridays, 1:30 p.m. - 2:20 p.m.

<u>Recitation Section</u>	<u>Location</u>	<u>Recitation Leader</u>	<u>Andrew E-mail</u>
D	TPR 2700	Andrew Mouton	amouton@andrew.cmu.edu

TA Office Hours: Our recitation leaders have graciously agreed to be available for office hours throughout the semester. They will be available at the following times and locations to help answer your questions:

Office Hours

<u>Recitation Leader</u>	<u>Day and Time</u>	<u>Location</u>
Andre Mouton	Thursday, 1:30-3:00pm	TPR 3803
Majid Mahzoon	Thursday, 3:00-4:30pm	TPR 2705

Extra Economics Support: In addition to myself and the TAs, you may always visit with the Executive Director of the economic program, Dr. Carol Goldberg for help with course material or other economics related questions or concerns.

E-mail Address: cg28@andrew.cmu.edu

Office: TPR 2406

Make appointments with CBG at: <https://meetme.so/CarolGoldburg>.

Important: When sending e-mail about the course, please begin the subject header with "73-103:". Each of us get many emails a day and labeling your email in this way will make sure it's noticed.



Course Description: Macroeconomics seeks to understand why some countries are rich and others poor; why countries experience phases of (sometimes rapid) expansion and subsequent (sometimes sharp) contraction; where inflation comes from; the scope for government to accelerate economic growth and restrain price inflation. We will only begin to address these questions in this class, but we will do critical groundwork. First, we will cover the topic of macroeconomic measurement. Macroeconomists (and many others) use a small number of economic aggregates to summarize the state of an economy. The most important of these is Gross Domestic Product or GDP. You will learn (exactly) what GDP is, how it is measured and what it is useful for. You will learn how aggregate price measures are constructed and used both to calculate measures of inflation and to adjust other measures to get “real” quantities. With this done we turn to a central question: why are some countries poor and others rich? We will use the concept of the production function to (begin to) make sense of this essential and complicated issue.

Next, we turn to specific markets that play an important role in macroeconomics. We start with labor markets. These are markets in which people trade their time, energy and skill with firms (and other people). In these markets, wages, employment and unemployment are determined. We will develop two frameworks for thinking about these markets. This will allow us to think about, amongst other things, the impact of technological change and migration on wages and employment opportunities. We then turn to financial markets and the determination of interest rates. In this context, we will discuss the role and functions of banks and briefly discuss the financial crisis of 2008/9. Discussion of financial markets leads naturally to a discussion of money. As you will learn, economists have a precise definition of money. In this part of the course you will learn what money is and the role of the money supply in impacting prices and creating inflation. In the context of the US, we will discuss the functions of the Federal Reserve Bank and its tools for controlling the money supply and, hence, influencing inflation and economic activity. We then consider business cycles and economic fluctuations. You will learn what causes business cycles and how governments can, in principle, damp them down. We will close out with a discussion of international trade.



As we proceed, we will use the tools and knowledge we develop to explore specific topical issues. On the agenda this semester: big macro data, the impact of robots and AI, migration, tax reform, crypto-currency and Bitcoin.

My goal is to introduce you to these important issues, which are central for understanding the broader economy in which you (will) work, save and make business decisions. I hope to whet your appetite for the amazing 73-240 Intermediate Macroeconomics course that economics @ CMU offers and which takes these issues further and deeper.

The topics that I have just described may seem quite different from those that you have seen in microeconomics. But all macroeconomics rests on microeconomics and you will see demand and supply diagrams, elasticities and (micro)economic reasoning and intuition all over the place, especially once we have covered the measurement section of the course.

Learning Objectives: By the end of this course the student (that's you!) will be able to:

1. Understand the basics of macroeconomic measurement;
2. Calculate macroeconomic aggregates like GDP, CPI and GDP deflator and interpret movements in these variables;
3. Use production functions to make sense of patterns of economic development and growth;
4. Analyze and explain patterns of unemployment and employment over time and across countries;
5. Elaborate the economic function of banks and of the government in regulating banks;
6. Describe the history, mission and functions of the Federal Reserve Bank (Fed);
7. Understand the essential sources of inflation and the policy options available to the Fed in trying to contain inflation;

8. Explain the causes of economic fluctuations and the role of policy in stabilizing these fluctuations;
9. Assess patterns of international trade.

Materials: There are two main sources of materials for you: (i) the textbook and (ii) slides and notes that I produce.

Textbook: The recommended textbook for this course is *Macroeconomics*, 2nd edition, by Acemoglu, Laibson, and List (Pearson Education).

This is the best principles of macro course available and the course will follow the basic structure of this book. Most (but not all) topics that we discuss and think about will be covered within a book chapter. The book will give you the opportunity to review these topics in a textbook setting (with full paragraphs and extra graphics). The e-textbook also contains many practice problems available in the accompanying MyEconLab. However, I do not follow the book verbatim. Class presentations may deviate from the book's presentation.

In addition, we will use what we learn to consider some special topics such as the impact of automation, inequality, crypto-currency. These are not covered in the book and for these topics extra readings will be assigned. For these reasons, the book is recommended, I think you will find it useful, but I do not require you to purchase it. If you do buy the book, I further recommend that you *purchase the e-text* and not the hard copy. You may (soon be able to) access the etextbook via Canvas > Modules > Course Materials > RedShelf (Access to e-Text and MyEconLab). We will provide more details about access as they become available. This text book is **OPT IN**. This means you will have to choose to opt-in to purchase the text book.

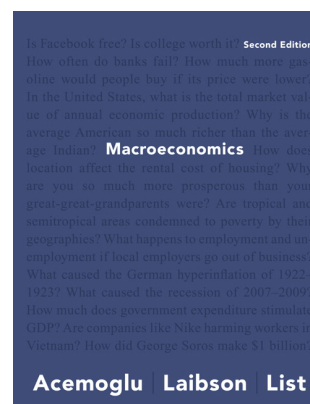


Figure 1: The textbook

Slides and Notes: I write slides for the class. Some sets of slides are supplemented with notes that I write. All of these materials will be posted on **Canvas**. They supplement the textbook: all of the main concepts are covered in both, but there are differences of perspective and emphasis. You should view the materials I post and the textbook as complements, each reinforcing the other. I write



the classes quizzes, homeworks and exams. They will be based on my posted materials. In class and in my materials, I present economic data mainly in the form of graphs. Knowing the magnitude of things is an important part of your education - many people have no idea! However, the focus in exam, homework and quiz questions will be on concepts and definitions, not data. I will supply you with review slides before each exam.

A couple of further comments on the slides.

- The versions of slides I post (relative to the ones I show) may have omissions so that we can engage in class discussion. You should fill in the omissions in class. Also while I follow the slides they are **not** a transcript of the class! They are designed to be used in conjunction with class attendance. Your job is to come to class and take notes around the skeleton of the slides. **Do not expect that if you skip class and read the slides at the end of the semester that they will make perfect sense to you and contain all the answers!** Do expect to be well prepared for the midterm and final if you come to class, pay attention and make notes. **Again let me know if anything is unclear to you.**
- I produce all the slides and notes using \LaTeX . It looks prettier and gives me more control: I prefer it to power point and word. The finished product is a pdf file. If you have any trouble reading anything please let me know.

Piazza

We will be using Piazza for outside of class discussion and questions. Asking questions is an important *public* good! To encourage sharing of information, please use the course forum on Piazza (accessible via Canvas > Piazza) to ask any question about the class. If you email me or the TAs directly with a question about course material or logistics, we will re-direct you to Piazza.

A brief note on best practices for use of Piazza. Piazza is a public forum. Please try to write any questions or comments in a concise, professional manner. Questions and comments should resemble a professional email with a salutation, a brief question or comment, and a closing. You should pretend you are writing



an email to your boss in a summer internship or job—how would this note reflect on you? (This is good practice for next summer or your career!) We will do our best to respond to all questions on Piazza within 24 hours. While we will try to respond to all questions sooner than 24 hours after they are posted, we cannot reply to all questions immediately, so please do not expect an immediate response. Typically, we respond to questions 2 to 4 hours after we see them.

Assessments

The cumulative score for this class is computed as follows:

Homework Assignments	10%
4 homeworks; lowest score dropped	
Quizzes	20%
≈8 quizzes; lowest 4 scores dropped	
First Midterm (Friday, September 28, 2018)	20%
Second Midterm (Friday, November 2, 2018)	20%
Final Exam (Date TBD by Enrollment Services)	30%

We assign final grades based on your cumulative score. We anticipate that at least one-third of the students will receive A's, at least one third B's, and about 5% D's and R's. The rest will receive C's. The cutoff for an A will be in the mid-high 80's, for a B in the mid-high 70's, for a C in the mid-high 60s. Bear in mind that average scores on homework and participation are typically high, while those on exams are typically lower. Average scores on midterms tend to range from 65% to 85%.

The above allocation of points to homework assignments, quizzes, and exams is our contract with you. Please do not ask if you can raise your grade by doing extra work or if we can modify the above formula to accommodate your circumstances. In the interests of fairness, we apply the same rules to everyone and the answer to such queries will be no. The only exception concerns midterms



missed due to documented illness or family emergency, which is discussed in the exam section of the syllabus below. Some students will inevitably fall close to, but below a cutoff when we assign grades. Such students sometimes ask for cutoffs to be reduced. Please do not do this. If you are just below a cutoff you may be close to the lowest A or B, but still some way from the average A or B and we consider these when assigning cutoffs.

Despite all of this discussion of grading, your main purpose in the class is to learn and to understand concepts from economics that will be useful and (we hope) interesting to you. This is fundamental. If you achieve this you will earn a good grade. *Remember a grade does not measure how much effort you put in, but how much you have learned.* More effort certainly helps, but effective effort is most important. Please feel free to use office hours to seek out assistance if you need it. More on effective effort and getting help below!

Quizzes

We will have short in-recitation quizzes most weeks. In a quiz week, the recitation leader will run the quiz for about 20 minutes. The remainder of the recitation will be discussion. The quiz will be closely linked to each week's lectures. It will feature definitions from class and calculations similar to those undertaken in class. I anticipate we will hold about 8 quizzes. We will drop your lowest 4 quiz scores when calculating your quiz grade. If you miss a quiz, you will get a zero (and it will be one of your dropped quiz grades). You must be present at the recitation at the moment the quiz begins to take it. If you forget to attend recitation, arrive late, are unwell or have an interview and cannot take the quiz, just write it off as one of your dropped grades. If you are a member of a CMU team and your team membership involves missing multiple recitations, please contact me as soon as possible. If you have a more serious illness that involves missing multiple recitations please see me.

Homework

We will post homework and solutions to help you prepare for the exams. These homeworks will mostly be ungraded. They are to help you prepare. There will be a small number (about 4) graded homework sets. I will drop your lowest homework score. These assignments will be posted on Canvas, and you are



responsible for downloading them. I will announce in class and on Canvas when a homework is to be turned in and graded. It is your job to look out for these announcements! When a homework is to be turned in and graded, the turn in date will be on a Monday at 5:00 p.m. on the date posted on the homework set. You will submit your assignments via Canvas. Once the assignments are graded, you will be notified and can review your work on Canvas. *We are very strict about homework deadlines and don't accept late homework.* There are two reasons for this. First we post solutions promptly after the deadline. Second, it is difficult to vet and verify every late homework explanation. But remember that you get to drop your lowest homework grade. Please use this option if you forget to do or turn your homework in or if you have a family emergency or minor illness. If you have a more serious event that prevents you doing multiple homeworks please come and see me!!

Exams

There will be two midterms and a final exam. We do not surprise students with unexpected questions in the exams. We prepare the exams so that any student who consistently works on homework sets, attends lectures and recitations, and carefully reads the slides, notes or textbook should do well at the end. Midterm exams will take place during recitation time. You must take the exam at the lecture time in which you are enrolled. The exams are closed book. *A 'simple' calculator which has no graphic capability may be used in the exams. We reserve the right to check calculators brought to exams.*

There will be no makeups for midterms. If you miss a midterm for a verified CMU team event or a documented illness, then we will shift the weight to other exams. You will still be able to obtain full credit. There will be a makeup for the final exam on the designated makeup day provided by the university. Please do not CMU before the final exam date as we cannot offer earlier exams.

In Class

1. In class, I will introduce topics and develop the main concepts. The discussion will contain many examples and applications. Our relatively short



- meeting times (twice a week for 50 minutes ☺) place some constraints on this, so classes will be supplemented with recitations that contain more examples that are tightly linked to homework.
2. You should come to class! Class keeps you engaged and motivates you. I give you the background for each week's quiz or homework and introduce you to the main topic. I orientate the in-class presentations and discussion to material on midterms and finals (which I, not the textbook authors or publishers, write). Bottom line: you'll do better if you regularly come to class and worse if you don't.
 3. I really encourage questions, comments and discussion. The big room may be intimidating, but please speak up. If you don't understand something, there's surely another student in the class who didn't either and you are helping both them and yourself by asking. Sometimes time constraints mean I will have to defer your question to an email or a piazza or canvas post. But questions are always good.
 4. Please tell me if you think the class is too fast or too slow. Students often have differences of opinion on this. But let me know what you think and I will try and calibrate the speed appropriately. Please use office hours to fine tune the classroom experience and iron out/clarify things that were not clear to you.
 5. Once the class starts no chatting, face booking, texting, sleeping. The goal is to create the best learning environment possible and these behaviors are disruptive for others. I do call students out on them. If I do this to you, please take it seriously, but not personally. I realize that phones and computers can be distracting and I'm not trying to be mean. But even if you're a super skilled multi-tasker and can pay attention in class while doing these things, it's very distracting to your fellow students. You should treat class as a professional activity. You won't last long with an employer if you do these things in a meeting, so it's good practice not to do them in class.



Recitations

Friday recitations serve the purpose of reinforcing the material covered in class during that week through quizzes, extra exercises and applications and by reviewing the class material. All recitation leaders will cover the same material in the recitation. Although the solutions to homework problems will be posted online, from time to time the recitation leaders will also go over selected (difficult) homework problems once again during the recitation for clarification or to give feedback on common mistakes. You may expect to see problems in the test that are similar to recitation exercises.

How to Win at 73-103 To get the most out of this class, I recommend that you come to lectures and ask questions either in the lectures or through Piazza or in office hours, whatever you are most comfortable with.

1. I will hold office hours on Mondays and Wednesdays from 3.00 until 5.00 pm in TPR 5141 (Tepper). **Please come and ask questions!** In office hours, you can ask questions about homework or ask for a more customized presentation of any part of the week's lectures or ask any supplementary questions that you might have. I really value interaction with students, so please don't feel shy or intimidated about coming.

I do want to especially encourage those students who have no prior background in macroeconomics to come!

My goal in office hours is to help you grasp the concepts. This will enable you to do quizzes, homework and exams effectively. The purpose is not for me to do your homework or check your answers for mistakes.

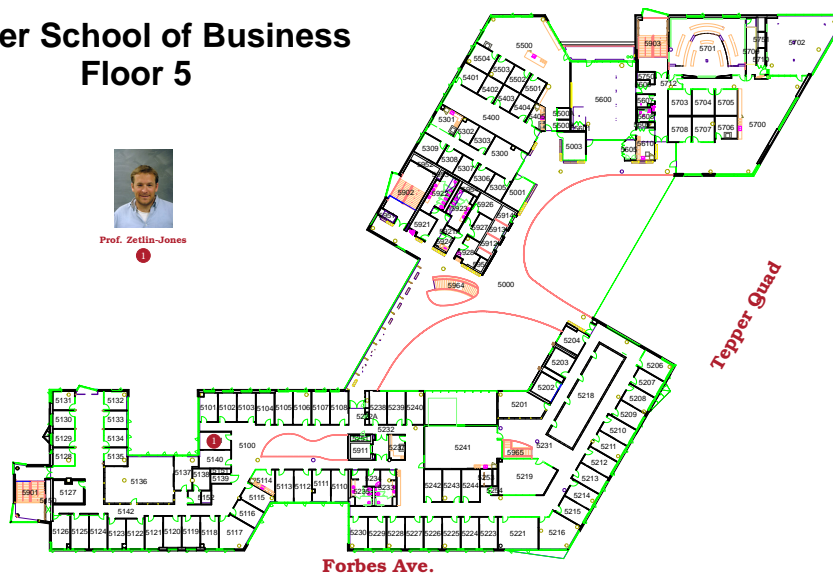
If you can't make my office hours send me an email and we can make an appointment for another time. **TPR 5141 is my office.** It's not that big, so if I'm seeing a few students at a time, I may ask you to wait outside. Before exams and maybe some other days as well, I may host online office hours via Piazza where you can ask for (almost) instantaneous feedback. I'll announce when I am going to do this in class.

The Tepper building is new and new places can be confusing. Below is a map of the 5th floor of Tepper with my office location marked. To get to



my office from the main entrance (in front of the Tepper building facing the Morewood parking lot), proceed as follows. Enter the building and take the elevators up to the fifth floor. As you exit the elevators, turn right and follow the glass wall all the way to the faculty suite. Enter the suite and turn right. Follow the hallway straight to my office.

Tepper School of Business Floor 5



Prof. Zetlin-Jones

2. As noted, we will be using Piazza for class discussion and questions. I encourage you to post your questions on Piazza. I also encourage you to read previously posted questions on Piazza.
3. If you want to privately email me about a class related issue, please feel free to do so. I try and respond to emails within 24 hours (and usually much faster).
4. Here are a few useful tips on using your study time efficiently
 - (a) **Read your lecture notes over within 24 hours of lecture.** Highlight or make marginal notes for important words or concepts. This will help fix ideas and will help you to actively learn the material. This review takes about 20-30 minutes and really yields a large return. Re-do examples yourself, step by step, with pencil and paper. Examples



often look easy when explained in class, but often turn out to be much harder when you do them yourself. Write down questions about things you do not understand. Bring these questions to office hours and ask them.

- (b) **Work through additional problems posted on the MyEconLab.** If you purchase the textbook, you can use problems in MyEconLab. These are designed to assess your basic understanding of the material covered. With the immediate feedback component to the site, working through these problems provides you with real time assessments of how well you understand the fundamental concepts covered in lecture.
- (c) **Do and review quiz and homework problems.** Actively doing and reviewing problems is the only way to learn the material. Some exam questions will be similar to quiz or homework problems. Start early. If an assignment is to be turned in, don't leave it until the night before it is due. Try doing the problems yourself before discussing them with other people.
- (d) **Review solutions to assignments and exams.** Just because you did not lose points on a homework question does not necessarily mean you fully understand the question and answer. Also, the solutions serve as a model for how to solve problems. You also learn from your mistakes. Make sure that you understand the correct solutions that we provide. Contact your recitation leader, me or Dr. Goldberg if you have any questions.
- (e) **Use office hours productively.** Be prepared for each meeting with me or your recitation leader. Have a list of questions ready ahead of the meeting. Please take advantage of the availability of office hours.

5. I have created a live anonymous feedback form at:

[Evaluate Prof. Zetlin-Jones](#)

Just click on the above link. I will check this twice a week. Feel free to leave feedback and comments here. This supplements the end-of-semester evaluation organized by the university.



6. In addition to the help we provide, Academic Development offers walk-in tutoring for this class. This is a free “drop-in with no appointment necessary” tutoring service offered one or two nights a week. We will post more details on Canvas once Academic Development has determined their exact schedule. This service is offered independently of us.

I'll close this section with some legal stuff:

All class materials on Canvas are for your use only and are copyrighted. You may not copy and circulate any of these materials or upload them to websites without the prior permission of the copyright holder.

Class Schedule

Below is an approximate class schedule. Since class discussion can sometimes be longer or shorter than expected, you should view this as a rough schedule. If you miss a few classes, we may be a little ahead or behind in this schedule.

I give the title and, in parenthesis, number of the textbook chapter most related to our class discussion/ lecture on each date and I will use a similar title on the corresponding set of slides. But to reiterate lecture and book are complements not substitutes.

Discussion topics are not linked to textbook chapters and indicated with *Topic* in the schedule.



Week	Monday	Wednesday
1	(August 27) Introduction to Class	(August 29) Introduction to Macroeconomics
2	(September 3) <i>Labor Day: No Class</i>	(September 5) Wealth of Nations (5)
3	(September 10) Wealth of Nations (5)	(September 12) Wealth of Nations (5)
4	(September 17) <i>Topic: Macro-Data</i>	(September 19) Aggregate Incomes (6)
5	(September 24) Aggregate Incomes (6)	(September 26) Economic Growth (7)
6	(October 1) Economic Growth (7)	(October 3) Economic Growth (7)
7	(October 8) <i>Topic: Robots, AI & the Economy</i>	(October 10) Employment & Unemployment (9)
8	(October 15) Employment & Unemployment (9)	(October 17) <i>Topic: Inequality & Migration</i>
9	(October 22) Credit Markets (10)	(October 24) Credit Markets (10)
10	(October 29) Monetary System (11)	(October 31) Monetary System (11)
11	(November 5) <i>Topic: Cryptocurrency & Bitcoin</i>	(November 7) Short-run Fluctuations (12)
12	(November 12) Short-run Fluctuations (12)	(November 14) Countercyclical Macroeconomic Policy (13)
13	(November 19) <i>Topic: Tax Reform</i>	(November 21) <i>Thanksgiving Break</i>
14	(November 26) International Trade (14)	(November 28) International Trade (14)
15	(December 3) <i>Topic: Exchange Rates</i>	(December 5) Review



The following are very important.

Exam Dates :

1. Midterm 1: September 28. Time: In recitation.
2. Midterm 2: November 2. Time: In recitation.
3. Final: TBA. Time: TBA. Room: TBA.



Last word. You may have seen the message below on other syllabi. I repeat it because it is important. Please as you progress through my (and other) courses, take academics seriously, but keep things in perspective. Please seek out help academic or otherwise around campus as you need it.

Take care of yourself. Do your best to maintain a healthy lifestyle this semester by eating well, exercising, avoiding drugs and alcohol, getting enough sleep and taking some time to relax. This will help you achieve your goals and cope with stress.

All of us benefit from support during times of struggle. You are not alone. There are many helpful resources available on campus and an important part of the college experience is learning how to ask for help. Asking for support sooner rather than later is often helpful.

If you or anyone you know experiences any academic stress, difficult life events, or feelings like anxiety or depression, we strongly encourage you to seek support. Counseling and Psychological Services (CaPS) is here to help: call 412-268-2922 and visit their website at

<http://www.cmu.edu/counseling/>

Consider reaching out to a friend, faculty or family member you trust for help getting connected to the support that can help.