

FINANCE 101

Monetary Economics and the Global Economy: A Quantitative Approach

Professor Lukasz A. Drozd

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This course is special edition of Finance 101. It relies on Mathematica software to expose students to elements of modern quantitative methods of economic analysis. Students will use this software throughout the semester to analyze and learn from a computer model of the economy. The course will emphasize depth over breadth and focus on developing a more rigorous treatment of the Finance 101 material, all within the prerequisites of the regular edition of the class.

The core part of the course will develop frameworks for understanding how macroeconomics news and shocks affect asset prices and other important financial and nonfinancial variables such as exchange rates, interest rates, inflation, employment, investment, output and consumption. Students will gain insight into how these variables, as well as the decisions of the country's fiscal and monetary authorities, interconnect through general equilibrium mechanisms that govern the economy as a whole.

The course comprises three major parts. The first develops the foundations of the markets for goods, labor and capital. The second combines these markets into a single framework to model simultaneously the entire economy in "general equilibrium". This framework is then used to study the behavior of key macroeconomic aggregates. In particular, we are interested in explaining (i) business cycle fluctuations of GDP and its components, employment, inflation and interest rates; and (ii) long-run growth in both developed and emerging economies. The last part of the course focuses on monetary policy and examines the global economic system, including exchange rates, trade and international economic policy. In all parts of the course, the analysis will be applied to current economic events, both in the U.S. and abroad. Particular emphasis is placed on the relation between macroeconomic events and financial markets.

COURSE OBJECTIVES

This class will help students:

- understand the workings of the economy as a whole;
- monitor business conditions in real time;
- anticipate and respond to significant macro events, such as recessions and financial crises at home or abroad;

- understand the global economy, with a particular emphasis on the impact of monetary policy on country's competitiveness;
- understand the origins, impacts and lessons from the recent financial crises;
- learn how to work in teams and communicate with other students so as to efficiently divide work and build on each other's strengths.

Many students find this knowledge helpful right away during interviews and summer internships.

COURSE MATERIALS

Website

Course website can be accessed through Canvas at <https://wharton.instructure.com/login>. To enter the site, you will need to have a Wharton account. If you do not have a Wharton account, you can apply online at <http://accounts.wharton.upenn.edu> to acquire one. You are expected to consult this website regularly and keep current with the posted content.

Readings

Mandatory readings:

The course will be taught from lecture notes. Additional mandatory readings will be available for purchase via study.net. A significant portion of the materials available for purchase from study.net will cover several chapters from the book "Stocks for the Long-run (...)" by Jeremy Siegel, which can be purchased separately. Instruction for computer software will be provided in class and briefly summarized in notes. A good textbook reference for the software can be found in "Mathematica: A Problem - Centered Approach" by Roozbeh Hazrat (Springer Series). Instructions provided in class will follow closely the first few chapters of this book.

Software

It is required that students have access to the basic edition of Mathematica software (by Wolfram). It is available for purchase through Penn's Office of Software Licensing for about \$30/year. To purchase the licence go to: <http://url.wolfram.com/8Js6xiM/>. While it is not required, it is highly recommended that students bring their laptop with installed software to each class.

Supplementary readings:

Lectured material can also be found in "Macroeconomics" by Abel, Bernanke, and Croushore [ABC] (Addison-Wesley), which is a supplementary reference book for the course. References to relevant chapters will be provided in class.

Throughout the semester, students are expected to follow current economic news. A subscription to *The Wall Street Journal* (best fit for the class), *The Economist*, *The Financial Times*, or a close substitute is highly recommended. Selected articles from various sources will be added to the required readings throughout the semester. All of these sources are accessible through the Penn library.

DELIVERABLES AND GRADING POLICY

The final grade for the course will be based on three examinations (two midterm exams and a final exam), 4-5 problem sets, and a final group project. The weights will be as follows: examinations 70%, problem sets 20%, group project 10%. In borderline cases, attendance may be taken into account. Please make sure you attend regularly the section you are enrolled in.

Exams

There will be two midterm exams and one final exam. The midterm exams are scheduled for the evenings (6pm) of Feb 19 (Thursday) and March 26 (Thursday). For room assignment, see course website prior to the exam. Early exam (4.30pm) can be arranged in case of a documented and unavoidable conflict involving some other (evening) class. The final examination will be scheduled during the official final examination period set by the registrar's office (see registrar's office website for current information: http://www.upenn.edu/registrar/pdf_main/SPRING_Exam_Schedule.pdf). Midterm exams will not be cumulative, but the final examination will be cumulative.

The final exam will be assigned twice the weight of the midterm exams, yielding effectively four exam grades at the end of the semester. The final "examination grade" will be computed as the average of the best three out of these four exam grades. This formula is intended to provide insurance against both scheduling conflicts (inability to attend a midterm) or an anomalous performance in the final exam (a bad day). As a result, no requests to reschedule or retake any of the two midterms will be entertained, unless specifically mandated by the University policy. For this reason, students should make sure they have no time conflict with the above exam dates.

The make-up final will be administered as required by the University policy for the final examinations (see registrar's office website for more information). Students must make prior arrangement before the actual final exam takes place and obtain a permission for such an accommodation. Rescheduled final exam will take place during the official make-up period (first week of the following semester). Please note that you automatically lose your eligibility for the make-up final in case you take the examination as scheduled.

Disability accommodations will be provided by the disability center. Eligible students need to make appropriate arrangements within the first two weeks of the semester and provide an appropriate

proof of eligibility. The exam will be scheduled to take place at the disability center during the time of the regular exam or right before the exam.

All exams are closed-book, but students are allowed to bring one single sided cheat-sheet with your own notes to the midterm exam (max A4 size), and up to three single sided cheat-sheets to the final exam (max A4 size). Cheat-sheets can only contain your own notes and in your own handwriting. In particular, cheat-sheets may not contain large portions of reproduced notes or any other course materials such as slides, solutions manuals, answer keys etc...

You will need an ID to be admitted to the exam. Non-scientific calculators are allowed. Cell phones, computers or i-pads are not. Please come to the exam a few minutes early to allow your proctors to start the exam on time.

Assignments

There will be 4-5 graded problem sets. The answers must be typed, except for the graphs / equations. Completed assignments must be submitted in-class before or after the lecture on the day the assignment is due. No late assignments will be accepted.

Students may and are encouraged to discuss the problem sets with their classmates (2-3 students per team max, see also information regarding the Final Project). Nonetheless, even if students work as a team, they still need to type their own unique copy of the homework. There is no penalty for working with other students on a homework, but it is required that students acknowledge such cooperation on the first page of the homework by stating the names of classmates they worked with. Please note that all members of the group need not get the same grade, as the way solution is presented also influences grading. It is recommended that you register your working group with me and continue working with the same set of people throughout the semester.

Graded assignments/exams will be placed in the student folders at the Finance Department. Students are responsible to pick up their graded assignments on time and verify grading using solution manual posted online.

Final Project

Students are responsible to find 2-3 teammates during the first 2 weeks of classes, in order to prepare a 15 minutes long in-class presentation analyzing a current or past macroeconomic event in Latin America or Asia (henceforth 'international project'). The presentations will take place during the last 2-3 classes. A proposal must be turned in by the 7th week of classes the latest. Further instructions will be provided later.

All students in the group will be awarded the same grade, regardless of their individual contributions. Part of the task is to organize the team so that all members contribute equally and individual student's strengths are utilized in the best way possible.

Grades and Regrade Requests

The letter grade for the course is based on the ranking of all final scores in the class. The detailed point cutoffs for the final letter grade will be announced after the semester ends.

Regrade requests must be submitted in writing within a week after the questioned item has been returned¹ to the class. Requests must be accompanied by an official Regrade Request Form, and an official Statement of Honesty. Both forms are available for download from the course website. Our response to the regrade request is final. Regrade requests are limited to serious omissions (and may be rejected on the basis of being insignificant). Please note that we retain the right to regrade the entire exam/homework assignment, which may result in a lower score.

Please note the following deadlines and policies regarding regrades/complaints:

- Graded content can not be modified. Violations will be construed as a violation of the Code of Academic Integrity and may be referred for a disciplinary action.
- Graded exams and problem sets must be held securely until the end of semester and made available for review upon request. Students are responsible to ensure that recorded grades in the roster are consistent with the grades they have received.

OFFICE HOURS

The schedule will be announced after the first week of classes on course website. Any cancellations will be announced on the course website.

ACADEMIC INTEGRITY

All relevant University policies regarding Academic Integrity must be followed strictly. Please review the Code of Academic Integrity at: <http://www.vpul.upenn.edu/osl/acadint.html>.

¹In the case of the final exam within the first week of the following semester.

TENTATIVE LIST OF TOPICS

- I. Introduction
- II. Economy and Asset Prices
- III. Macroeconomic Measurement and Real-time Economic Indicators
- IV. Key Sectors and Markets of the Aggregate Economy
- V. Monetary Policy and the Role of Liquid Assets in the Economy
- VI. Business Cycles and the Stabilization Role of Macroeconomic Policy
- VII. International Trade and General Equilibrium of a Globalized World
- VIII. Monetary and Fiscal Policy in a Global Economy
- IX. Core Applications and Student Presentations