NEW YORK CITY COLLEGE OF TECHNOLOGY
The City University of New York School of Arts & Sciences
Department of Social Science Course Outline

Course code: ECON 3101
Course title: Applied Macroeconomics
Class hours/credits: 3 class hours, 3 credits
Prerequisite: ECON 2101; ECON 3201

CATALOG DESCRIPTION: Applications of macroeconomic theory to topical issues. Introduces numerical methods used in research, with applications to big data-sets. Students gain the ability to constructand estimate models, and to explore complex relationships between economic aggregates. Evaluation of fiscal, monetary, and trade policy. Using empirical and computational techniques, monitoring of macroeconomic conditions, drivers of long-term sustainable growth, policy shocks, and exchange rate volatility are discussed.

RECOMMENDED TEXTBOOK and MATERIALS*
Kevin D. Hoover. 2012. Applied Intermediate Macroeconomics. Cambridge University Press.
John Cochrane (Chicago), Time Series for Macroeconomics and Finance, available athttp://econ.lse.ac.uk/staff/wdenhaan/teach/cochrane.pdf

Additional reading material in particular research papers and reports will be assigned each week.
** The textbook used in a particular section will be chosen by the instructor.*

ONLINE DATA SOURCES AND INFORMATION RESOURCES;;;
Federal Reserve Economic Data (FRED), https://fred.stlouisfed.org/Federal Reserve Bank, https://www.federalreserve.gov/
U.S. Bureau of Economic Analysis (BEA), https://www.bea.gov/
U.S. Bureau of Labor Statistics, https://www.bls.gov/
U.S. Census Bureau, https://www.census.gov/en.html
The National Bureau of Economic Research, http://www.nber.org/
World Development Indicators by The World Bank, https://data.worldbank.org/products/wdi
International Financial Statistics by IMF, https://www.imf.org/en/Data
Data.gov http://data.gov
ScienceDirect https://www.sciencedirect.com/ Enterprise Surveys http://www.enterprisesurveys.org/

COURSE INTENDED LEARNING OUTCOMES/ASSESSMENT METHODS

LEARNING OUTCOMES	ASSESSMENT METHODS*
Develop quantitative skills needed for the empirical researchin macroeconomics and apply methods and findings to selected topics in applied macroeconomics; estimate modelsusing empirical techniques; obtain results; provide ability toanalyze and critically evaluate macroeconomic policy and recommend options.	Problem sets in homework and on midterm exam; short essay questions on midterm exam; classroom discussions; a term projectand an oral presentation.
Apply macroeconomic theory and tools to identify the determinants of economic growth in the long run; learn methods of monitoring economic conditions in real time; correct non-stationarity in data; construct a relevant model andestimate it using applied econometrics; identify principal components; test and forecast.	Problem sets in homework and on midterm exam; short essay questions on midterm exam; classroom discussions; a term projectand an oral presentation.
Build a dynamic growth model and modify it along different dimensions that impact sustainability; demonstrate knowledgeof methods, e.g., nonlinear methods, in solving dynamic optimization problem and interpret the results.	Questions on midterm exam; classroomdiscussions; a term project and an oral presentation.
Enhance understanding of how dynamic effects of monetary,fiscal, and trade policy shocks are measured; evaluate vectorautoregressive (VARs) models, impulse response of output and prices to policy shocks, use multivariate co-integration method for interactions between policies.	Short essay question on midterm exam; classroom discussions; a term project and anoral presentation.
Apply theory on exchange rate determination; assess exchangerate volatility using a generalized autoregressive conditional heteroscedastic model (GARCH).	Problem sets in homework and on midterm exam; short essay questions on midterm exam; classroom discussions; a term projectand an oral presentation.
Enhance understanding of how macroeconomic theory is connected to real-world issues. Analyze real data, e.g., interestrates, money supply, real estate prices, inflation, and exchangerates.	Short essay question on midterm exam; classroom discussions; a term project and anoral presentation.

GENERAL EDUCATION LEARNING OUTCOMES/ASSESSMENT METHODS

LEARNING OUTCOMES	ASSESSMENT METHODS*
1. KNOWLEDGE: Develop knowledge from a range of disciplinary perspectives, and develop the ability to deepen and continue learning.	1. Short answer questions on midterm exam; problem sets in homework; classroom discussions; a term project and an oral presentation.

2. SKILLS: Develop and use the tools needed for communication, inquiry, analysis, and productive work.	2. Short answer questions on midterm exam; problem sets in homework; classroom discussions; a term project and an oral presentation.
3. INTEGRATION: Work productively within and across disciplines.	3. Short answer questions on midterm exam; problem sets in homework; a term project and an oral presentation.
4. VALUES, ETHICS, AND RELATIONSHIPS: Understand and apply values, ethics, and diverse perspectives in personal, civic, and cultural/globaldomains.	4. Class discussion; teamwork, term project and oralpresentation.

* may vary slightly per instructor to suit their own needs

SCOPE OF ASSIGNMENTS and other course requirements*

There will be three homework assignments including problem sets that will build quantitative skills duringthe semester; a midterm exam; a term project involving some outside research and preparing a research paper (8-10 pages) that requires applying relevant theory or building a model, gathering and analyzing of data and related information, using empirical methodology, interpreting the results, and/or proposing policyoptions, and an oral presentation.

TECHNOLOGY STATEMENT

Prior taking this course, students should be familiar with MS Word, Excel, PowerPoint, and at least one statistical package, such as R or Stata. Students will thereby further enhance their data analytical skills.

METHOD OF GRADING – elements and weight of factors determining the students' grade*

Homework Assignments: 30%
Midterm Exam: 30%
Term project/presentation: 40%
**may vary per instructor to suit their own needs*

ATTENDANCE POLICY

It is the conviction of the Department of Social Science that a student who is not in a class for any reasonis not receiving the benefit of the education being provided. Missed class time includes not just absencesbut also latenesses, early departures, and time outside the classroom taken by students during class meeting periods. Missed time impacts any portion of the final grade overtly allocated to participation and/or any grades awarded for activities that relate to presence in class.

Instructors may include a reasonable "Participation" grade into their final grade calculations for this course.

ACADEMIC INTEGRITY POLICY STATEMENT

Students and all others who work with information, ideas, texts, images, music, inventions, and otherintellectual property owe their audience and sources accuracy and honesty in using, crediting, and citing sources. As a community of intellectual and professional workers, the College recognizes its responsibilityfor providing instruction in information literacy and academic integrity, offering models of good practice, and responding vigilantly and appropriately to infractions of academic integrity. Accordingly, academic dishonesty is prohibited in The City University of New York and at New York City College of Technologyand is punishable by penalties, including failing grades, suspension, and expulsion. The complete text of the College policy on Academic Integrity may be found in the catalog.

STUDENT ACCESSIBILITY

City Tech is committed to supporting the educational goals of enrolled students with disabilities in the areas of enrollment, academic advisement, tutoring, assistive technologies, and testing accommodations.If you have or think you may have a disability, you may be eligible for reasonable accommodations or academic adjustments as provided under applicable federal, state, and/or city laws. You may also requestservices for temporary conditions or medical issues under certain circumstances. If you have questions about your eligibility and/or would like to seek accommodation services and/or academic adjustments, please email the Student Accessibility Center.

COMMITMENT TO STUDENT DIVERSITY

The Department of Social Science complies with the college wide nondiscrimination policy and seek to foster a safe and inclusive learning environment that celebrates diversity in its many forms and enhancesour students ’ability to be informed, global citizens. Through our example, we demonstrate an appreciation of the rich diversity of world cultures and the unique forms of expression that make us human.

SAMPLE SEQUENCE OF TOPICS AND TIME ALLOCATIONS (number of hours)*

Week	Topics	Assignment/Reading*
1	**Introduction and Overview** a. Macroeconomics and the Real World b. International Economic Accounts	U.S. BEA; International Accounts; Kuznets; Hoover (2012).
2	**National –Income-and-Product Account (NIPA)** a. National Accounting Identities b. Building the National –Income-and-Product Account (NIPA) based on Patterns in Data	U.S. BEA: NIPA Guide and Data; Hoover (2012).
3	**Determinants of Long-term Economic Growth** a. Applications of Theory; Constructing Models b. Method: Applied Econometrics	Mankiw, Romer, Weil (1992); Fischer (1993); Lane (2001); Hoover (2012).

4	**Growth Models and their Modification; Sustainable Growth and Open Economies** a. Applications of Theory; Constructing a Model and its Variants b. Numerical Solution with Nonlinear Methods	Meerschaert (2007); Gruene & Pannek (2011); Hoover (2012).
5	**Measuring the Effects of Monetary Policy; Monetary Policy Shocks** a. Applications of Theory b. Method: Multivariate time series (Bayesian Vector Autoregressions (VARs), Impulse Response, Sensitivity Analysis of Parameters, Variance Decompositions, Co-integration) c. Method: Dynamic Factor Models	Leeper, Sims, Zha(1996); Bernanke, Boivin, Eliasz (2005); Hoover (2012).
6	**Effects of Government Purchases and Taxes; Fiscal Policy Shocks; Fiscal multipliers.** a. Applications of Theory b. Method: Multivariate Time Series (Vector Autoregressions (VARs), Impulse Response, VarianceDecompositions, Co-integration)	Mountford & Uhlig (2009); Barro & Redlick (2011); Hoover (2012).
7	**Monitoring Macroeconomic Conditions and Forecasting usingLarge Datasets** a. Review of Methods b. The Federal Reserve Bank Method of *Now*casting c. Dynamic Factor Models for handling Large Data Sets	Giannone et al. (2008);Bok (2017);
8	**Phillips Curve: U.S. Inflation and Unemployment** a. Applications of Theory b. Method: Applied Econometrics	Andrle (2012); Blanchard (2016); Hoover (2012).
9	**Midterm Exam****	
10	**Measuring the Effects of Trade Policy** a. Applications of Theory b. Method: Applied Econometrics	Edwards (1993), Harrison (1995).

11	**Exchange Rate Determination** a. Application of Theory: Purchasing Power Parity b. Application of Theory: The Uncovered Parity Approach c. Application of Theory: The Monetary Approach, andothers d. Method: Multivariate Time Series (Vector Autoregressions (VARs), Impulse Response, VarianceDecompositions, Co-integration)	Mundell (1963); Bilson (1978); Mishkin (1984); Engle & Granger (1987);Meese & Rogoff (1988);Froot & Rogoff (1994); Eichenbaum & Evans (1995); Groen (2000); Bilson & Marston (2007).
12	**Exchange Rate Volatility** a. Applications of Theory b. Method: Autoregressive Conditional HeteroscedasticModel (ARCH) and GARCH c. Method: Monte Carlo Methods	Bollerslev (1990); Engle (2001); Bilson & Marston(2007).
13	**Debt Effect on Economic Growth, Excess Debt, and OptimalDebt** a. Applications of Theory b. Method: Mean-Variance Approach c. Method: Applied Econometrics d. Method: Nonlinear Methods	Pattillo et al. (2002); Stein (2005); Meerschaert(2007); Caner et al. (2010); Cecchetti et al. (2011).
14	**The Business Cycle and the Economy; Technology Shocks** a. Applications of Theory b. Identifying Business Cycle based on Patterns in Data c. Method: Principal Component Analysis	Ireland (2004); Andrle etal. (2017); Hoover (2012).
15	***Term Project/Presentation***	

**guidelines from which instructors may select or adapt*

** Assignment/reading is subject to change.*

***Exam dates are subject to change.*

SELECT BIBLIOGRAPHY:

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ResearchWorking Paper No. 4511. http://www.nber.org/chapters/c7649.pdf
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