CREI Course Offer – Summer 2026

Category	Description
Summer School Description	The Barcelona CREI Macroeconomics Summer School offers an overview of the current state of research in key areas of macroeconomics. The courses are taught by leading experts in their fields. They cover recent developments in different areas of macroeconomics, including international macroeconomics, asset and credit bubbles, sovereign debt crises, numerical methods, firms and finance, and econometrics for policy evaluation. A key benefit of attending this summer school is that courses provide both technical tools and “big picture” ideas on macroeconomics and finance, so that they can be useful for advanced students and practitioners alike. Moreover, faculty are accessible to summer school participants for lively discussions on research and – more generally – on course contents. CREi Centre de Recerca en Economia Internacional This Summer School is jointly organized by Barcelona School of Economics and the Center for Research in International Economics (CREI), a research institute sponsored by the Generalitat de Catalunya and Universitat Pompeu Fabra, in fulfillment of its aim to promote the dissemination of research in macroeconomics and related areas.

Participant Profile	The courses are aimed at advanced undergraduate and graduate students, as well as more senior researchers and practitioners willing to brush up their knowledge and expose themselves to the latest advances in macroeconomics knowledge.
Prerequisites or other specific criteria	Familiarity with basic modeling and econometric tools is recommended to take full advantage of course materials. Applicants to all Summer School programs should meet the basic entry requirements.

Course list for 2026

Code	Course	Professor	Time	Start	End
26SME13	**Climate Change, Firms, and the Green Transition**	**Andrea Caggese**	**9.00-11.00**	29-jun	3-jul
26SME15	**Quantitative Methods for Spatial Economics**	**David Nagy**	**11.30-13.30**	29-jun	3-jul
26SME02	**Numerical Methods for Fiscal and Monetary Policy Analysis**	**Davide Debortoli**	**14.30-16.30**	29-jun	3-jul
26SME02P	*Numerical Methods: Computer Practicals*	Davide Debortoli	17.00-18.00	29-jun	3-jul
26SME06	**The Macroeconomics of Credit and Asset Bubbles: Booms, Busts, and Policy Responses**	**Alberto Martin**	**9.00-11.00**	6-jul	10-jul
26SME14	**The Data Economy: Tools and Applications**	**Isaac Baley**	**11.30-13.30**	6-jul	10-jul
26SME07	**Sovereign Debt Crises: Theory, Evidence and Policy**	**Fernando Broner**	**11.30-13.30**	6-jul	10-jul
26SME16	**Monetary and Fiscal Policies for Productivity Growth**	**Luca Fornaro**	**14.30-16.30**	6-jul	10-jul
26SME12	**POLICYMETRICS: Econometrics for Macroeconomic Policy Making**	**Geert Mesters**	**14.30-16.30**	6-jul	10-jul
26SME12P	*POLICYMETRICS: Econometrics for Macroeconomic Policy Making: Lab Practicals*	Geert Mesters	17.00-18.00	6-jul	10-jul

Course details:

COURSE TITLE	**The Macroeconomics of Asset Bubbles: Booms, Busts, and Policy Responses**
Overview and Objectives	What are bubbles? What are their effects on the economy? How should policymakers deal with them? In this course, we address these questions from a macroeconomic perspective. We first review the stylized evidence on credit and asset bubbles. We then develop a workhorse model to think about bubbles and their macroeconomic effects. In particular, we focus on the effects of credit and asset bubbles on business cycle models. We conclude by using the model to shed light two key debates regarding bubbles: (i) How should monetary policy respond to asset bubbles?; (ii) What roles do bubbles play in driving credit booms and busts? This course is intended for students, researchers and practitioners who want to become familiar with the state of knowledge on the origins and macroeconomic effects of bubbles.
Prerequisites to Enroll	Basic knowledge of dynamic models is recommended.
Course Outline	• A review of the empirical evidence on bubbles • Introduction to the theory of rational bubbles • Credit and asset bubbles in business cycle models • Policy design (I): bubbles and monetary policy • Policy design (II): bubble, credit booms, and information depletion
List of References	• Asriyan, V., L. Fornaro, A. Martin, and J. Ventura, Monetary Policy for a Bubbly World, Review of Economic Studies, forthcoming. • Asriyan, V., L. Laeven, and A. Martin, Collateral Booms and Information Depletion, Review of Economic Studies, forthcoming. • Abel, A., N. Mankiw, L. Summers and R. Zeckhauser, Assessing Dynamic Efficiency: Theory and Evidence, Review of Economic Studies, 1989. • Carvalho, V., A. Martin and J. Ventura, Bubbly Business Cycles, American Economic Review, 2012. • Gali, J., Monetary Policy and Bubbles in a New Keynesian Model with Overlapping Generations, American Economic Journal: Macroeconomics. • Guerrón-Quintana, P., Hirano, T. and R. Jinnai, Recurrent Bubbles and Growth, Boston University mimeo, 2021.

	• Hiraona, T., M. Inabab, and N. Yanagawa, Asset Bubbles and Bailouts, Journal of Monetary Economics, 2015 • Leroy, S., Rational Exuberance, Journal of Economic Literature, 2004. • Martin, A. and J. Ventura, Theoretical Notes on Bubbles and the Current Crisis, IMF Economic Review, 2011. • Martin, A. and J. Ventura, Economic Growth with Bubbles, American Economic Review, 2012. • Martin, A. and J. Ventura, Managing Credit Bubbles, Journal of the European Economic Association, 2016. • Martin, A. and J. Ventura, The Macroeconomics of Rational Bubbles: A User's Guide, Annual Review of Economics, 2018. • Tirole, J., Asset Bubbles and Overlapping Generations, Econometrica, 1985.
Software / Hardware Needed	NA
About the Instructors	*Alberto Martin* earned his PhD in Economics from Columbia University in 2005. He is currently a Senior Researcher at the Center for Research in International Economics (CREI), an Adjunct Professor at Universitat Pompeu Fabra, a Research Professor at the Barcelona School of Economics (BSE), and a Research Fellow at the Center for Economic Policy Research. He also serves as Deputy Director for Research at the BSE, and has served as an Associate Editor at the *Journal of International Economics*, a member of the Board of Editors of the *Review of Economic Studies,* and a Member of the Panel at *Economic Policy*. Professor Martin has held positions at the European Central Bank, the International Monetary Fund and the Argentine Ministry of Economics. He has been awarded the Fulbright Fellowship, the Lamfalussy Fellowship from the European Central Bank, Consolidator and Advanced Research Grants from the European Research Council, and the Taula de Canvi prize from the Catalan Economic Society. Alberto's research interests include macroeconomics, finance and international economics. His work has appeared in *The American Economic Review*, *The Review of Economic Studies*, and *The Journal of Finance*, among others.

COURSE TITLE	**Sovereign Debt Crises: Theory, Evidence and Policy**
Overview and Objectives	This course provides an overview of sovereign debt crises from theoretical, empirical and policy points of view. It covers both traditional and new theories that emphasize the interplay between international and domestic financial markets, and the relevant empirical evidence. It discusses the distinction between liquidity and solvency crises and the appropriate policy responses. The last part of the course is devoted to an analysis of the European crisis. The course is aimed at students, researchers, and practitioners. It provides a formal analysis of some of the main theoretical models and empirical studies in the sovereign debt academic literature. At the same time, the presentation is accessible as it emphasizes conceptual understanding and policy implications.
Prerequisites to Enroll	None
Course Outline	1. What are the costs of sovereign default? Reputation and sanctions 2. Market structure and defaults: Secondary markets and collateral damage 3. Rollover crises: Lender of last resort and moral hazard 4. Solvency crises: Debt overhang, buybacks and restructuring 5. Lessons from Europe
List of References	• Acharya, V., I. Drechsler, and P. Schnabl (2014), "A pyrrhic victory? Bank bailouts and sovereign credit risk," *Journal of Finance* • Aguiar, M. and G. Gopinath (2006), "Defaultable debt, interest rates and the current account," *Journal of International Economics* • Arellano, C. (2008), "Default risk and income fluctuations in emerging economies," *American Economic Review* • Arellano, C. and A. Ramanarayanan (2012), "Default and the maturity structure in sovereign bonds," *Journal of Political Economy* • Broner, F., A. Erce, A. Martin, and J. Ventura (2014), "Sovereign debt markets in turbulent times: Creditor discrimination and crowding-out effects," *Journal of Monetary Economics* • Broner, F., G. Lorenzoni and S. Schmukler (2013), "Why do emerging economies borrow short term?" *Journal of the European Economic Association* • Broner, F., A. Martin and J. Ventura (2010), "Sovereign risk and secondary markets," *American Economic Review*

	• Broner, F. and J. Ventura (2016), "Rethinking the effects of financial globalization," *Quarterly Journal of Economics* • Cole, H. and T. Kehoe (2000), "Self-fulfilling debt crises," *Review of Economic Studies* • Cruces, J. and C. Trebesch (2013), "Sovereign defaults: The price of haircuts," *AEJ: Macroeconomics* • Gennaioli, N., A. Martin and S. Rossi (2014), "Sovereign default, domestic banks, and financial institutions," *Journal of Finance* • Obstfeld, M. and K. Rogoff (1996), Foundations of International Macroeconomics, Ch. 6.1 • Obstfeld, M. and K. Rogoff (1996), Foundations of International Macroeconomics, Ch. 6.2 • Reinhart, C. and K. Rogoff (2011), "From financial crash to debt crisis," *American Economic Review* • Reinhart, C., V. Reinhart, and K. Rogoff (2012), "Public debt overhangs: Advanced-economy episodes since 1800," *Journal of Economic Perspectives* • Reinhart, C. and B. Sbrancia (2015), "The liquidation of government debt," *Economic Policy* • Reinhart, C. and C. Trebesch (2016), "Sovereign debt relief and its aftermath," *Journal of the European Economic Association* • Rose, A. (2005), "One reason countries pay their debts: Renegotiation and international trade," *Journal of Development Economics*
Software / Hardware Needed	NA
About the Instructors	Fernando Broner is a Senior Researcher at the Center for Research in International Economics (CREI), an Adjunct Professor at Universitat Pompeu Fabra, a Research Professor at the BSE and a Research Fellow at the CEPR (London). He is Co-Director of the Master's in International Trade, Finance and Development at the BSE and coordinator of Macroeconomics teaching in the UPF PhD program. He received his PhD in Economics from MIT in 2000. Professor Broner was Visiting Professor at MIT and LBS, Assistant Professor at University of Maryland, Co-Editor of the Journal of International Economics, Advisor at Bank of Spain's Division of International Economics, and Visiting Scholar at the IMF and the World Bank. He was awarded a European Research Council Starting Grant in 2010 for the project "International Capital Flows and Emerging Markets." His work has appeared in the American Economic Review, the Quarterly Journal of Economics, the Review of Economic Studies, the Journal of the European Economic Association, and the Journal of Monetary.

COURSE TITLE	**Numerical Methods for Fiscal and Monetary Policy Analysis**
Overview and Objectives	This course will cover state-of-the-art techniques to solve and simulate modern macroeconomic models, with specific applications to models used for fiscal and monetary policy analysis. Through a combination of theory classes and lab sessions, participants will learn the main methodologies, their pros and cons, and how to implement them in specific applications. Some examples are models to study the role of a zero-lower bound constraints on the nominal interest rate and forward-guidance policies, sovereign debt models, models with financial frictions, and heterogeneous agent models. Computer Lab Practicals The course includes 5 hours of practical sessions to give participants the opportunity to familiarize with the different routines described in class, and will demonstrate their advantages and disadvantages in terms of accuracy and efficiency. The course is designed for graduate students, researchers and practitioners in policy institutions who would like to upgrade their toolbox for solving and analyzing modern macroeconomic models, and for studying their policy implications.
Prerequisites to Enroll	No previous knowledge of numerical methods is required, but a basic knowledge of MATLAB (or another programming language) would be very helpful.
Course Outline	● Introduction to Local Solution Methods (Perturbation): Basic principles about solving and simulating dynamic models; linear and higher-order approximation of stochastic models (the perturbation method); ● Fiscal and Monetary Policy Rules: Simple rules; regime-switches; the zero-lower bound. ● Optimal Fiscal and Monetary Policy: The welfare criterion; optimal simple rules; optimal Ramsey policy; commitment vs. discretion. ● Solving models with Global Approximations: Models with borrowing constraints; sovereign default models. ● Heterogeneous Agent Models: How to deal with idiosyncratic and aggregate uncertainty; solution with perturbation methods; solution with sequence-space Jacobian.

List of References	Main references (additional references will be provided during the course) ● Auclert, A., Bardóczy, B., Rognlie, M., & Straub, L. (2021), ”Using the sequence-space Jacobian to solve and estimate heterogeneous-agent models,” Econometrica, 89(5), 2375-2408. ● Fernandez-Villaverde J. and J. Rubio Ramirez (2016), “Solution and Estimation Methods for DSGE Models”, Handbook of Macroeconomics, Vol. 2. ● Guerrieri, L. and M. Iacoviello (2015), “OccBin: A toolkit for solving dynamic models with occasionally binding constraints easily”, Journal of Monetary Economics, 70, 22-38. ● Debortoli, D., Galí, J., & Gambetti, L. (2020), “On the empirical (ir) relevance of the zero lower bound constraint,” NBER Macroeconomics Annual, 34(1), 141-170. ● Schmitt-Grohé, S., and M. Uribe (2005), "Optimal fiscal and monetary policy in a medium-scale macroeconomic model," NBER Macroeconomics Annual, 20, 383-425.
Software / Hardware Needed	Sample codes and exercises will be provided in MATLAB.
About the Instructors	Davide Debortoli is Professor of Economics at UPF, Research Associate at CREI, Affiliated Professor at BSE and a Research Fellow at the CEPR. He has held an academic position at the University of California San Diego, and visiting positions at the Norges Bank and Bocconi University. He has been awarded a Marie Curie Fellowship from the European Commission (2016), and the Wim Duisenberg Fellowship from the European Central Bank (2020). His research interests include Macroeconomics, Fiscal Policy and Monetary Policy.

COURSE TITLE	**The Data Economy: Tools and Applications**
Overview and Objectives	In today's interconnected world, businesses across modern economies are immersed in a data revolution. They gather, dissect, utilize, and trade colossal volumes of data. Starting from the premise that data is digitized information that facilitates prediction and reduces uncertainty, this course leverages a range of theoretical frameworks at the research frontier in macroeconomics and finance to model and measure data economies. By doing so, we aim to uncover the intricate ways in which firm-level data choices resonate throughout the broader macroeconomic and financial landscapes. Our applications span a wide spectrum, encompassing critical aspects such as assessing the economic worth of data and unraveling its influence on the structure of production, pricing dynamics, firm behavior, market competitiveness, intermediation, and the intricacies of financial markets. The course is aimed at students and practitioners interested in understanding contemporary issues related to the data economy, its welfare consequences, and optimal data policy. We put forward a broad research agenda for an interdisciplinary audience with a formal yet accessible approach.
Prerequisites to Enroll	Basic knowledge of statistics and dynamic models is recommended.

Course Outline	• Introduction to the Data Economy • Firms' Data Sources • Data-Driven Predictions and Aggregate Outcomes • Using Data in Strategic Settings • Data in Production and Data Feedback Loop • Data Measurement and Valuation • Data Policy and Welfare
List of References	Textbook: "The Data Economy: Tools and Applications" (Baley and Veldkamp, Princeton University Press, forthcoming in January 2025). · Veldkamp, L., and Chung, C. (2019). Data and the aggregate economy. Journal of Economic Literature, forthcoming. · Goldfarb, A. and Tucker, C. (2019). Digital economics. Journal of Economic Literature, 57 (1), 3-43. · Baley, I. and Veldkamp, L. (2023). Bayesian learning. In Handbook of Economic Expectations, 717-748. · Mankiw, G. and Reis, R. (2002). Sticky information versus sticky prices: A proposal to replace the new Keynesian Phillips curve. Quarterly Journal of Economics, 117, 1295-1328. · Sims, C. A. (2003). Implications of rational inattention. Journal of Monetary Economics, 50(3), 665-690. · Baley, I., Figueiredo, A., and Ulbricht, R. (2022). Mismatch cycles. Journal of Political Economy, 130(11), 2943-2984. · Lucas, R. E. (1972). Expectations and the neutrality of money. Journal of Economic Theory, 4 (2), 103-124 · Baley and Blanco (2019), Firm Uncertainty Cycles and the Propagation of Nominal Shocks. American Economic Journal: Macroeconomics, 11 (1), 276-337. · Mackowiak, B. and Wiederholt, M. (2009). Optimal sticky prices under rational inattention. American Economic Review, 99 (3), 769-803. · Morris, S. and Shin, H. S. (2002). Social value of public information. American Economic Review, 92 (5), 1521-1534. · Woodford, M. (2003). Imperfect common knowledge and the effects of monetary policy. Knowledge, Information, and Expectations in Modern Macroeconomics: In Honor of Edmund S. Phelps, 25. · Venkateswaran, V. (2014). Heterogeneous information and labor market fluctuations. Available at SSRN 2687561. · Hellwig, C. and Veldkamp, L. (2009). Knowing what others know: Coordination motives in information acquisition. The Review of Economic Studies, 76, 223-251. · Hellwig, C., Kohls, S. and Veldkamp, L. (2012). Information choice technologies. American Economic Review, 102 (3), 35-40.

	· Farboodi and Veldkamp (2022), A model of the data economy, NBER Working Paper 28427. · Jones, C. I. and Tonetti, C. (2020). Nonrivalry and the economics of data. American Economic Review, 110 (9), 2819-58. · Fajgelbaum, P.D., Schaal, E. and Taschereau-Dumouchel, M. (2017). Uncertainty traps. The Quarterly Journal of Economics, 132(4), pp.1641-1692.
Software / Hardware Needed	None
About the Instructors	Isaac Baley is a tenured associate professor at Universitat Pompeu Fabra, an associate researcher at CREI, and an affiliated professor at the Barcelona School of Economics. Isaac earned his Ph.D. in Economics from New York University. His research aims to understand the impact of micro-level frictions—imperfect information, adjustment costs, and search—on macroeconomic outcomes. He received the EEA Award for Exceptional Teaching and an ERC grant.

COURSE TITLE	**Monetary and Fiscal Policies for Productivity Growth**	
Overview and Objectives	As highlighted by Draghi's report (Draghi, 2014), reviving productivity growth is one of the most important challenges for the European Union. Recent advances in artificial intelligence and clean energy technologies have the potential to boost productivity, but also to cause disruptions in economic activity. How should we design macroeconomic policies to ensure that these new technologies deliver higher productivity and widespread welfare gains? This course introduces state of the art theoretical frameworks and empirical evidence to understand the relationship between monetary and fiscal policies and productivity growth, a relatively unexplored but crucial field of research. More precisely, we will address how monetary and fiscal policies should manage the green transition, the challenges	

	to employment posed by AI and other automation technologies, and the potential barrier to growth represented by the high stock of public debt accumulated in most advanced economies, and the risk of fiscal stagnation. It is intended for students, researchers, and practitioners who want to become familiar with state-of-the-art theoretical and empirical tools to navigate the challenges that macroeconomic policies design will face over the next decades.. Topics covered include: i) Monetary and policies for the green transition. The phasing out of dirty technologies and development of clean ones will induce a massive process of structural transformation of our economies. This process will pose challenges both to central banks and governments. For instance, the phasing out of dirty technologies is likely to generate inflationary pressures, but a hawkish monetary policy response - by depressing aggregate demand and increasing the cost of capital - may discourage firms from adopting clean technologies. So what is the appropriate conduct of monetary policy during the green transition? What is the role of fiscal interventions, such as subsidies to the adoption of green technologies? ii) Artificial intelligence, and other forms of automation technologies, may boost productivity growth, but also displace workers and create technological unemployment. How should central banks and fiscal authorities navigate this trade-off? iii) Most advanced economies have accumulated large stocks of public debt. To ensure debt sustainability, governments are likely to introduce distortionary taxes and cut on public investment, thus harming productivity productivity growth. On the other hand, low productivity growth increases the public debt to GDP ratio, calling for further fiscal adjustments to ensure debt sustainability. We will see that this mechanism may push economies into a state of fiscal stagnation, characterized by high debt, high fiscal distortions and low growth. We will discuss policy options to avoid or exit fiscal stagnation, as well as implications for debt sustainability and the EU fiscal rules.	
Prerequisites to Enroll	Having completed, or being near the completion, of a master in Economics.	
Course Outline	i) Monetary and fiscal policies for the green transition. ii) Artificial Intelligence and technological unemployment.	

	iii) Public debt and fiscal stagnation.
List of References	**(Preliminary)** Various references will be mentioned during the course. Some examples are Fornaro, L.; Guerrieri, V. and Reichlin, L. (2024), "Monetary Policy for the Energy Transition", BIS report Fornaro, L.; Wolf, M. (2024), "Fiscal Stagnation", CREI working paper Benigno, G.; Fornaro, L. (2018), "Stagnation Traps", Review of Economic Studies Fornaro, L.; Wolf, M. (2022), "Monetary Policy in the Age of Automation". CREi working paper Fornaro, L.; Wolf, M. (2023), "The Scars of Supply Shocks", Journal of Monetary Economics.
Software / Hardware Needed	NA
About the Instructors	Luca Fornaro earned his Ph.D. from the London School of Economics. He is a Senior Researcher at the Center for Research in International Economics (CREi), Adjunct Professor at Universitat Pompeu Fabra (UPF), and Research Professor at the Barcelona School of Economics. He is also a Research Affiliate at the Centre for Economic Policy Research (CEPR) in London, and has been a Visiting Scholar at European Central Bank, the Banque de France, the Bank of England, the Federal Reserve Bank of Minneapolis and the Federal Reserve Bank of New York. His research interests include international macroeconomics, monetary economics, fiscal policy and economic growth. He is the recipient of the KEYNESGROWTH ERC Starting Grant, and his research has been published in the American Economic Review, the Review of Economic Studies, the Journal of the European Economic Association, the Journal of Monetary Economics and the Journal of International Economics. He is currently preparing a report on Monetary Policy for the Energy Transition commissioned by the Bank for International Settlements.

COURSE TITLE	**Quantitative Methods for Spatial Economics**
Overview and Objectives	The availability of highly disaggregated spatial data and the development of new methods have revolutionized the field of spatial economics, or economic geography, over the last few years. This course offers an overview of state-of-the-art models of the spatial economy, which are often referred to as quantitative spatial models (QSM). It focuses on the set of economic questions this rapidly growing field seeks to answer, but also on the practical computational challenges involved in solving these models and taking them to the data. The course is aimed at graduate students, researchers and practitioners who want to develop a working knowledge of QSM in order to answer policy-relevant questions about the geography of economic activity and its implications for the aggregate economy.
Prerequisites to Enroll	None
Course Outline	• Why does space matter? Increasing returns, transport costs and the geography of economic activity • The importance of market access • Quantitative urban economics • Dynamic spatial economics
List of References	• Ahlfeldt, G., Redding, S., Sturm, D. and Wolf, N. (2015): The economics of density: Evidence from the Berlin Wall. *Econometrica* 83(6), 2127-2189. • Allen, T. and Arkolakis, C. (2014): Trade and the topography of the spatial economy. *Quarterly Journal of Economics* 129(3), 1085-1140. • Allen, T., Arkolakis, C. and Li, X. (2023): On the equilibrium properties of spatial models. *American Economic Review: Insights*, 6(4), 472-489. • Allen, T. and Donaldson, D. (2022): Persistence and path dependence in the spatial economy. Mimeo. • Bleakley, H. and Lin, J. (2012): Portage and path dependence. *Quarterly Journal of Economics* 127(2), 587-644. • Caliendo, L., Dvorkin, M. and Parro, F. (2019): Trade and labor market dynamics: General equilibrium analysis of the China trade shock. *Econometrica* 87(3), 741-835. • Caliendo, L., Opromolla, L., Parro, F. and Sforza, A. (2021): Goods and factor market integration: A quantitative assessment of the EU enlargement. *Journal of Political Economy* 129(12), 3491-3545.

	• Ciccone, A. and Hall, R. (1996): Productivity and the density of economic activity. *American Economic Review* 86(1), 54-70. • Davis, D. and Wenstein, D. (2002): Bones, bombs, and break points: The geography of economic activity. *American Economic Review* 92(5), 1269-1289. • Desmet, K., Nagy, D. and Rossi-Hansberg (2018): The geography of development. *American Economic Review* 104(4), 1211-1243. • Donaldson, D. and Hornbeck, R. (2016): Railroads and American economic growth: A "market access" approach. *Quarterly Journal of Economics* 131(2), 799-858. • Giannone, E. (2022): Skill-biased technical change and regional convergence. Mimeo. • Helpman, E. (1998): The size of regions. In: *Topics in public economics: Theoretical and applied analysis*, ed. Pines, D., Sadka, E. and Zilcha, I. 33-54. Cambridge University Press. • Kleinman, B., Liu, E. and Redding, S. (2023): Dynamic spatial general equilibrium. *Econometrica* 91(2), 385-424. • Krugman, P. (1991): Increasing returns and economic geography. *Journal of Political Economy* 99(3), 483-499. • Redding, S. (2016): Goods trade, factor mobility and welfare. *Journal of International Economics* 101, 148-167. • Redding, S. and Sturm, D. (2008): The costs of remoteness: Evidence from German division and reunification. *American Economic Review* 98(5), 1766-1797. • Tsivanidis, N. (2023): Evaluating the impact of urban transit infrastructure: Evidence from Bogotá's TransMilenio. Mimeo.
Software / Hardware Needed	None
About the Instructors	Dávid Krisztián Nagy is a Senior Researcher at CREI, an Adjunct Professor at UPF, and a BSE Affiliated Professor. He has been a Peter B. Kenen Fellow at Princeton University, a Visiting Scholar at the Minneapolis Fed Opportunity and Inclusive Growth Institute, and a Visiting Professor at Columbia University. He has been awarded The 2019 Journal of Political Economy's Robert E. Lucas Jr. Prize for his paper "The Geography of Development." He is a Co-Editor of the Regional Science and Urban Economics, an editorial board member of The Review of Economic Studies, a Research Fellow at CEPR, a Research Network Affiliate at CESifo, and a Fellow of the Hungarian Society of Economics. His primary research interests are International Trade and Economic Geography.

COURSE TITLE	**Climate Change, Firms, and the Green Transition**
Overview and Objectives	This course provides an overview of the effects of climate change on firms, and the role of firm dynamics and innovation in the green transition. It is intended for students, researchers, and practitioners who want to become familiar with state-of-the-art theoretical and empirical tools to quantify firm-level and aggregate damages of climate change, as well as evaluate the effectiveness of existing policies in promoting the green transition. Topics covered include: i) Recent approaches to quantify the effects of climate change at both firm and aggregate levels, bridging the gap between heterogeneous micro-level impacts and their macroeconomic consequences. ii) An overview of foundational theoretical frameworks on firm dynamics, financial frictions, and innovation, and their application in studying how carbon taxes and green subsidies can foster firm entry, innovation, and the green transition. iii) An introduction to econometric methods used in recent empirical studies that analyze patent and emissions data to evaluate the impact of current policies on reducing carbon emissions.
Prerequisites to Enroll	Having completed, or being near the completion, of a master in Economics.
Course Outline	Topics covered include: 1) Recent approaches to quantify the effects of climate change at both firm and aggregate levels, bridging the gap between heterogeneous micro-level impacts and their macroeconomic consequences. 2) An overview of foundational theoretical frameworks on firm dynamics, financial frictions, and innovation, and their application in studying how carbon taxes and green subsidies can foster firm entry, innovation, and the green transition. 3) An introduction to econometric methods used in recent empirical studies that analyze patent and emissions data to evaluate the impact of current policies on reducing carbon emissions.

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Software / Hardware Needed	NA
About the Instructors	Andrea Caggese is Associate Professor at UPF, Associate Researcher at the Center for Research in International Economics (CREI), and Affiliated Professor at BSE. He holds a PhD in Economics from the London School of Economics (2002). His research interests include Macroeconomics, Investment Theory, Firm Dynamics, Climate Change, and Entrepreneurship and Innovation. He has been awarded a grant from the European Investment Bank on “Intangibles, Technology Diffusion, and Public Policies: Implications for Firm Investment, Market Structure, and Aggregate Productivity” (2021-2024) and an ICREA Academia Grant (2024-29). His work has appeared in the American Economic Journals: Macroeconomics, Journal of Financial Economics, Review of Financial Studies, the Journal of Monetary Economics, the Economic Journal and the Review of Economic Dynamics, among others.

COURSE TITLE	POLICYMETRICS: Econometrics for Macroeconomic Policy Making
Overview and Objectives	Real world policy decisions often result from analyzing different models and making judgment calls. This practical approach has benefits in terms of robustness, but a major downside is that it can be difficult to identify the most appropriate course of policy. Questions arise, such as how to accurately calibrate the magnitude and timing of a fiscal package or how to strike the right balance between inflation and unemployment through monetary policy. In this course, participants will learn how modern econometric methods, in particular methods for impulse response estimation and forecasting, can be used as building blocks to evaluate and improve practical macroeconomic policy decisions. The methodology allows participants to combine insights from multiple economic models, qualitative evidence, and judgment to reach optimal policy decisions in complex and data rich macroeconomic environments. The course is designed for monetary and fiscal policy makers, their staff members, and researchers and PhD students interested in the econometrics of policy making.
Prerequisites to Enroll	Participants should be familiar with basic macroeconometric models and methods.
Course Outline	The course provides a bottom-up approach to explain the econometrics of policy making. • Impulse response estimation and forecasting • Testing optimality of policy decisions • Optimizing policy decisions • Evaluating counterfactual policies • Communicating policy decisions • Ranking policy institutions Participants will be exposed to a variety of real world and real time policy problems from monetary and fiscal policy stemming from the US, Europe and emerging market economies. These empirical case studies showcase how to analyze policy decisions using minimal assumptions. Implementation material is provided for all methods and practical assignments allowing to develop a quick understanding for implementing.

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Software / Hardware Needed	Empirical implementation code is provided in Matlab and R.
About the Instructors	Geert Mesters is an Associate Professor at Universitat Pompeu Fabra, Research Professor at the BSE and an Associate Researcher at CREI. He holds a PhD from the Tinbergen Institute and VU Amsterdam. He has been awarded a Starting Grant from the European Research Council, a VENI research grant from the Netherlands Ministry of Science and a Ramon y Cajal fellowship from the Spanish Ministry of Science. He received the Arnold Zelner thesis award from the American Statistical Association and the Christian Huygens award. His research has been published in the American Economic Review, Quarterly Journal of Economics, Annals of Statistics, Journal of Econometrics, The Review of Economics and Statistics and the Journal of Monetary Economics. His research interests include macroeconomics, econometrics and statistics.