

Quantitative Macroeconomics

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Overview: This is a graduate course on macroeconomics for students in the second year or above. The goal of course is to equip students with modeling and quantitative skills used in the field of macro and particularly in growth and macro development. In the first part, the instructor will cover dynamic models with heterogenous agents and basic numerical techniques, e.g. value function iteration. The second part contains selected applications, such as, dynamic trade and growth, Schumpeterian growth models with heterogenous firms, and dynamic general equilibrium models with financial/ labor market frictions.

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Organization: The class meets on Monday from 15:10 to 18:00 in Room 405, Teaching Building No 3. I will hold weekly office hours on TBA. You can also make an appointment by email.

Grading: Your overall performance will be assessed based on (i) problem sets (counting **%), (ii) in-class presentation of a paper with approval of the instructor, and (iii) a final research proposal.

Textbooks: The following book is recommended, though we will not strictly follow it.

- Heer, Burkhard and Alfred Maussner (2009), "Dynamic General Equilibrium Modeling: Computational Methods and Applications", 2nd edition

Syllabus:

1. Neoclassical growth models
 - transition dynamics
 - adding uncertainty
2. Heterogenous agent incomplete market models
 - value function iteration
 - stationary distribution

- transition dynamics
 - aggregate shocks, Krusell and Smith (1998)
3. Introduction to micro datasets
 4. Firm dynamics models and applications:
 - Hopenhayn (1991), Rogerson and Hopenhayn (1993)
 - dynamic entrepreneurial choice models, Buera and Shin (2013)
 - Schumpeterian growth model with firm dynamics, Klette and Kortum (2004)
 - dynamic models with frictional labor markets
 - trade, capital accumulation and growth
 5. Introduction to continuous time models
 - growth model and incomplete market models in continuous time

Recommended reading list (To-be-updated)

- Trade, Structural Change, and Growth
 1. Acemoglu, Daron, and V. Guerrieri. 2008. "Capital Deepening and Nonbalanced Economic Growth". *Journal of Political Economy* 116 (3).
 2. Bajona, Claustre, and T. Kehoe. 2010. "Trade, Growth, and Convergence in a Dynamic Heckscher-Ohlin Model." *Review of Economic Dynamics* 13 (3): 487-513.
 3. Connolly, Michelle. and K. Yi. 2015. "How Much of South Korea's Growth Miracle Can Be Explained by Trade Policy." *American Economic Journal: Macroeconomics* 7 (4): 188-221.
 4. Ju, Jiandong, J. Y. Lin, and Y. Wang. 2015. "Endowment Structures, Industrial Dynamics, and Economic Growth." *Journal of Monetary Economics* 76: 244-263.
 5. Ravikumar, B., A.M. Santacreu and M. Spasi. 2018. "Capital Accumulation and Dynamic Gains from Trade." *Journal of International Economics* forthcoming.
 6. Uy, Timothy, K. Yi and J. Zhang. 2013. "Structural Change in an Open Economy." *Journal of Monetary Economics* 60: 667-682.
 7. Ventura, Jaume. 1997. "Growth and Interdependence." *The Quarterly Journal of Economics* 112 (1): 57-84.

- Dynamic Models with Financial/ Labor Market Frictions

1. Buera, Francisco, J. Kaboski and Y. Shin. 2012. "Finance and Development: A Tale of Two Sectors." *American Economic Review* 101(5): 1964-2012.
2. Buera, Francisco, and Y. Shin. 2013. "Financial Frictions and the Persistence of History." *Journal of Political Economy* 121 (2): 221-272.
3. Itskhoki, Oleg, and B. Moll. 2019. "Optimal Development Policies with Financial Frictions." *Econometrica* 87 (1): 139-173.
4. Midrigan, Virgiliu, and D. Y. Xu. 2010. "Finance and Misallocation: Evidence from Plant-Level Data." *American Economic Review* 104 (2): 422-458.
5. Moll, Benjamin. 2014. "Productivity Losses from Financial Frictions: Can Self-Financing Undo Capital Misallocation?" *American Economic Review* 104(10): 3186-3221.
6. Song, Zheng, K. Storesletten, and F. Zilibotti. 2010. "Growing Like China." *American Economic Review* 101: 196-233.
7. Engbom, Niklas. 2017. "Worker Flows and Wage Growth over the Life-Cycle: A Cross-Country Analysis." Working Paper.
8. Engbom, Niklas. 2019. "Firm and Worker Dynamics in an Aging Labor Market." Working Paper.
9. Bilal, Adrien G., N. Engbom, S. Mongey, and G. L. Violante. 2019. "Firm and Worker Dynamics in a Frictional Labor Market." NBER Working Paper.

- Schumpeterian Growth Models

1. Acemoglu, Daron, U. Akcigit, H. Alp, N. Bloom, and W. Kerr. 2018. "Innovation, Reallocation and Growth." *American Economic Review*.
2. Acemoglu, Daron, U. Akcigit, and M. A. Celik. 2017. "Young, Restless and Creative: Openness to Disruption and Creative Innovations." Working Paper.
3. Aghion, Philippe, U. Akcigit, and P. Howitt. 2014. "What Do We Learn From Schumpeterian Growth Theory?" *Handbook of Economic Growth*.
4. Aghion, Philippe, and P. Howitt. 1992. "A Model of Growth through Creative Destruction." *Econometrica* 60: 323-51.
5. Akcigit, Ufuk, S. T. Ates, and G. Impullitti. 2018. "Innovation and Trade Policy in a Globalized World." Working paper.
6. Akcigit, Ufuk, and W. R. Kerr. 2018. "Growth with Heterogenous Innovation", *Journal of Political Economy*. 126 (4).
7. Grossman, Gene, and E. Helpman. 1991. "Quality Ladders in the Theory of Growth." *Review of Economic Studies* 58 (1): 43-61.
8. Klette, Tor Jakob, and S. Kortum. 2004. "Innovating Firms and Aggregate Innovation." *Journal of Political Economy* 112 (5).

9. Lentz, Rasmus, and D. T. Mortensen. 2008. "An Empirical Model of Growth Through Product Innovation." *Econometrica* 76 (6).
10. Peters, Michael. 2019. "Heterogenous Markups, Growth and Endogenous Misallocation." Working Paper.