**Applied Theory
*as Applied to Economic Development*
Winter 2015**

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***Course Information:***
Class: TuTh 4:00-5:45, Cowell Acad. 222
Office hours: [Usually] 11AM to 12PM, Mondays and Wednesdays. Sign up at <http://people.ucsc.edu/~azshenoy/teaching.html>

Course Description:
This course will help you learn to apply theory effectively in your research. I want you to understand how to build a good model, how to test a model, and how to “take a model seriously” (a euphemism for structural estimation). Since I focus on skills rather than topics this course will differ from most field classes. I assign only a few papers for you to read, and choose those papers less for their topics than their methods. Though most of the papers are on economic development, especially macroeconomic development, I expect a student from any field will benefit.

Grading:
Since you will never have to take an exam in your research, you will never have to take an exam in this class. Instead your grade will depend on **Presentations** **(30%)**, **Workshops (60%)**, and **Participation (10%)**.

* **Presentations (30%):** One of you will present nearly every paper on the syllabus. The presentation should be roughly 35 minutes long, though you should expect it to go on longer as people ask questions. Your presentation should follow the guidelines listed below. If relevant, explain how the authors derive and test the model’s predictions, or how the authors estimate and validate the structural model. **Before your presentation you must come to my office hours with a draft ready for me to check.** You are welcome to visit earlier if you want to discuss the paper before you start working on your presentation.

After each presentation, I will **randomly choose** one of you (not the presenter) to "discuss" the paper presented. Much like a discussant at a conference, you must point out several parts of the research you think could be improved and give suggestions for how you think they might be improved. Since I am choosing you at random, I do not expect you to have slides for your discussion, but you must be prepared give 5 minutes of critical commentary on the paper.
* **Workshops (60%):** After each broad topic (building a good model, testing a model, etc.) we will have a workshop to help you hone the skill you have learned. Before class you will send everyone a brief write-up. Your write-up should be no longer than four single-spaced pages. Each of you will be assigned as a discussant for someone’s write-up. The author of the write-up will give a brief presentation. The discussant will give an even briefer presentation that provides frank (but polite) criticism and suggestions. We will then proceed workshop-style, during which everyone is expected to give the author suggestions. You will be graded on your write-up, your presentation, and your discussion. Each workshop will require more work than the last, and the importance to your grade will reflect this. The first workshop is worth 10%, the second 20%, the third 30% (for a total of 60%).
* **Participation (10%):** Even when you are not presenting, I expect you to participate knowledgably in every discussion. In particular, I expect you to offer your own opinion or questions on readings and to make suggestions during workshops. During your professional career you will be evaluated not only on your own work but on how you comment on the work of others. During this class you will be graded accordingly.

# Presentation Guidelines

Your presentation must answer several questions about the paper. The exact questions will depend on the section of the course.

1. *Building a good model:* What led the authors to build this model? What stylized facts, what flaws in existing theory? What are the crucial assumptions of the model? How do they differ from the assumptions of existing theory? How do they drive the behavior of the model? What are the testable predictions? Find the most important result in the paper and (briefly!) sketch its derivation, giving the intuition behind each step.
2. *Testing a model:* What theory or model do the authors test? Why is the model important? Briefly sketch the derivation of each test. Is the test positive or negative? Give the intuition of how the crucial assumptions of the model imply the test. What data do the authors use? How do the variables correspond to the components of the model? Walk us through where each variable appears in the equation used to the test the model, and explain the econometric procedure used to run the test. Show us the results and explain how each estimate supports or rejects the theory.
3. *Taking a model "seriously":* What model do the authors estimate? Why is it suited to the context? If their aim is to simulate a counterfactual outcome, how does the model help them? What simplifying assumptions do they impose, and how do they justify them? What functional form assumptions do they impose? Are they acceptable in this context? In what contexts might they be unacceptable? What are the structural parameters that must be fed into the model? Explain the procedure they use. What data do the authors use? How do the variables correspond to the components of the model? What, if any, validation do they offer for the model?

# Course Outline:

*Disclaimer: This is subject to frequent and drastic revision*

1. **Building a good model**
	1. Introduction: Crucial assumptions
		1. Solow, Robert (1956). “A Contribution to the Theory of Economic Growth.” *Quarterly Journal of Economics*
	2. Starting from new or better assumptions
		1. Better micro-foundations
			1. Kremer, Michael (1993). "The O-Ring Theory of Development." *Quarterly Journal of Economics*
			2. Basu, Susanto and David N. Weil (1998). "Appropriate Technology and Growth." *Quarterly Journal of Economics*
			3. Romer, Paul (1990). "Endogenous Technological Change." *Journal of Political Economy*.
			4. Lucas, Robert E. (1978). "On the size distribution of business firms." *Bell Journal of Economics*.
		2. Different assumptions, different predictions
			1. Stiglitz, Joseph E. and Andrew Weiss (1981). "Credit Rationing in Markets with Imperfect Information." *American Economic Review*
			2. De Meza, David and Webb, David C. (1987). "Too Much Investment: A Problem of Asymmetric Information." *Quarterly Journal of Economics*
	3. Starting from stylized facts
		1. The very long run
			1. Galor, Oded and David N. Weil (2000). "Population, Technology, and Growth: From Malthusian Stagnation to the Demographic Transition and Beyond." *American Economic Review*
		2. Modern macro phenomena
			1. Carroll, Christopher D., Jody Overland, and David N. Weil (2000). "Saving and Growth with Habit Formation. *American Economic Review.*
			2. Acemoglu, Daron and Fabrizio Zilibotti (1997). "Was Prometheus Unbound by Chance? Risk, Diversification, and Growth." *Journal of Political Economy*
	4. Arguing for a new interpretation
		1. Banerjee, Abhijit (1997). "A Theory of Misgovernance." *Quarterly Journal of Economics*.
		2. Acemoglu, Daron and Thierry Verdier (2000). "The Choice between Market Failures and Corruption." *American Economic Review*.
	5. The consequences of noise
		1. Morris, Stephen and Hyun Song Shin (2001). "Global Games: Theory and Applications." *Cowles Foundation Discussion Paper*. [Just do Sections 1 and 2]
		2. Ashworth, Scott and Ethan Bueno de Mesquita (2009). “Elections with platform and valence competition.” *Games and Economic Behavior*
2. **Testing a model**
	1. Introduction: The ideal versus the reality of empirical economics
	2. Rejecting "standard" models
		1. Jones, Charles I. (1995). "Time Series Tests of Endogenous Growth Models." *Quarterly Journal of Economics.*
		2. Duflo, Esther and Christopher Udry (2004). "Intrahousehold Resource Allocation in Cote d'Ivoire: Social Norms, Separate Accounts and Consumption Choices." Working Paper.
		3. Deaton, Angus and Christina Paxson (1998). "Economies of Scale, Household Size, and the Demand for Food." *Journal of Political Economy.*
	3. Distinguishing between theories
		1. Jacoby, Hanan G. and Emmanuel Skoufias (1997). "Risk, Financial Markets, and Human Capital in a Developing Country." *Review of Economic Studies*
		2. Kinnan, Cynthia (2011). "Distinguishing Barriers to Insurance in Thai Villages." Working Paper.
	4. A convincing test of your own theory
		1. Aghion, Philipe, Peter Howitt, and David Mayer-Foulkes. "The Effect of Financial Development on Convergence: Theory and Evidence." *Quarterly Journal of Economics.*
		2. Banerjee, Abhijit, Dilip Mookherjee, Kaivan Munshi, and Debraj Ray (2001). "Inequality, Control Rights, and Rent Seeking: Sugar Cooperatives in Maharashtra." *Journal of Political Economy*.
		3. Jensen (2007). "The Digital Provide." *Quarterly Journal of Economics*.
3. **Taking a model "seriously"**
	1. Introduction: Reduced-Form versus Structural Estimation
	2. Calibration
		1. Hsieh, Chang-Tai and Peter Klenow (2009). "Misallocation and Manufacturing TFP in China and India." *Quarterly Journal of Economics.*
		2. Jeong, H. and R. Townsend (2007). "Sources of TFP Growth: Occupational Choice and Financial Deepening." *Economic Theory*.
	3. Estimation
		1. Regression
			1. Mankiw, Greg, David Romer, and David Weil (1992). “A Contribution to the Empirics of Economic Growth.” *Quarterly Journal of Economics.*
			2. Donaldson, David (Forthcoming). “Railroads of the Raj: Estimating the impact of transportation infrastructure.” *American Economic Review*.
		2. Generalized method of moments
			1. Blundell, Richard and Stephen Bond (2000). “GMM Estimation with persistent panel data: an application to production functions.” *Econometric Reviews.*
		3. Simulated method of moments
			1. Kaboski, Joseph, and Robert Townsend (2011). “A Structural Evaluation of a Large-Scale Quasi-Experimental Microfinance Initiative.” *Econometrica*
		4. Nonparametric
			1. Ackerberg, Dan, Kevin Caves, and Garth Frazer (2006). “Structural identification of production functions.” Unpublished Manuscript.
		5. Maximum Likelihood
			1. Duflo, Esther, Rema Hanna, and Stephen Ryan (2012). “Incentives Work: Getting Teachers to Come to School.” *American Economic Review*
		6. Linear programming
			1. Karaivanov, Alex, and Robert Townsend (2014). “Dynamic financial constraints: Distinguishing mechanism design from exogenously incomplete regimes.” *Econometrica*.
		7. Estimating games
			1. Bajari, Patrick, Han Hong, and Stephen P. Ryan (2010). "Identification and Estimation of a Discrete Game of Complete Information." *Econometrica*.
			2. Aguirregabiria, Victor and Pedro Mira (2007). "Sequential Estimation of Dynamic Discrete Games." *Econometrica*.
	4. Validation
		1. Todd, Petra and Kenneth Wolpin (2006). "Assessing the Impact of a School Subsidy Program in Mexico

# Workshops:

1. Building a good model
	1. Find a working paper with a lot of theory (preferably all theory)
	2. Find the crucial assumptions
	3. Briefly describe how the assumptions drive the behavior of the model—that is, why the model would make different predictions without those assumptions
	4. Are the assumptions good? Why or why not?
2. Testing the predictions of models
	1. Choose either one of the papers from Section 1 or the working paper you used for the first workshop
	2. Derive several testable predictions. Explain why they are crucial.
	3. Describe one hypothetical (ideal) experiment to test the theory; that is, pretend you've been handed exogenous variation
	4. Describe the sort of data you would need, and give at least one example of an actual dataset that contains some of the data (if not the exogenous variation)
3. Structural estimation
	1. Choose one of the papers from the first or second parts of the course (or the paper you used in the first workshop)
	2. Design a strategy to estimate the structural parameters of the model
		1. Give the conditions you will impose to estimate the model (e.g. moment conditions), or describe the numerical method you would use if such conditions have no analytic solution
		2. Describe the assumptions under which the model estimates the parameters
		3. Describe the type of data you will need
	3. Design a method to verify the estimation—that is, design a form of external validation
		1. Describe an actual ideal experiment that might test the model
		2. Describe a hypothetical policy or natural experiment (not necessarily real, but plausible)