

**University of Notre Dame du Lac**  
**Financial Frictions and Unconventional Monetary Policy**  
**ECON 70428-01**  
**Spring 2021**

**Location:**

Jenkins-Nanovic Hall B044

**Times:**

Tuesdays, 9:30am-12:00pm

**Instructor:**

Eric Sims

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Personal [website](#)

Course website on [Sakai](#)

Office hours: by appointment

**Course Overview:**

This is a half-semester long PhD course in advanced macroeconomics. The specific focuses are quantitative models of financial frictions and models of unconventional monetary policy. We aim to better understand the nature of financial market frictions and imperfections, how financial frictions can amplify and propagate other real and nominal shocks, how financial shocks themselves can contribute to fluctuations, and how financial market imperfections are potentially relevant for the conduct of monetary policy (particularly large-scale asset purchases, more commonly referred to as quantitative easing or QE).

The class is lecture-based. We will be working through the details of several leading models of financial market frictions and unconventional policy. You are expected to read all the papers listed in the course outline below. I will provide detailed notes on the models as well. Students are required to conduct replication exercises of three different papers. In addition, there will be a final exam.

The course presumes a working knowledge of modern macroeconomics. Students should be comfortable with, for example, Gali's textbook on New Keynesian models and monetary policy. They should also be comfortable with solving and simulating dynamic stochastic general equilibrium (DSGE) models. The replication exercises require students to work in Matlab or a similar programming language.

**Assignments and Evaluation:**

Students will be required to complete three replication assignments over the course of the semester. Due dates and descriptions of these assignments are below. In addition, there will be a written final exam. This exam will be administered online via Sakai. It will be made available the morning of May 14 and due by the end of the day on May 15. Each replication exercise is worth 20 percent of the course grade. The final exam accounts for the remaining 40 percent of the course grade.

The three replication exercises involve the following papers and will be due on the noted dates:

1. Carlstrom and Fuerst (1997, *AER*): due April 13 via Sakai
2. Iacoviello (2005, *AER*): due April 27 via Sakai
3. Carlstrom, Fuerst, and Paustian (2017, *AEJ: Macro*): due May 11 via Sakai

These replication exercises refer to the quantitative DSGE models in each of these papers – not any empirical components, including structural estimation of model parameters. For each paper students are expected to turn in detailed, typed notes deriving the equilibrium conditions of main the model. These typed notes should be several pages at a minimum. Students should solve the model in Dynare using the main calibrated or estimated parameters from the papers in question. Impulse responses to shocks and a few selected moments should be included as part of the replication. Replications should focus on the baseline exercises in the papers, not robustness checks. Replications do not need to be perfect or exact – indeed, it is virtually impossible to exactly replicate any paper. If some key figure or statistic cannot be approximately replicated, the student should be upfront about this and discuss possible reasons why.

For many of these papers, you can find codes online. You can also find notes working through the key details of the models. Furthermore, I will be providing you with my own notes. It is perfectly fine to look at and reference these when going through your own replication. What I'm really asking you to do is to roll up your sleeves and work through these papers in great detail. Doing so will increase your own human capital and may well generate ideas for papers of your own.

I am a firm believer that the only real way to learn these models is to get under the hood and get your hands dirty. That's what I'm asking you to work through the models in detail and code them up yourselves. These codes might come in handy when you start doing your own dissertation research.

### **Course Outline and Readings (approximate and subject to revision):**

During class lectures, we will be working through a number of leading papers in the literature. Below, you will find a course schedule. You should reach each of the listed papers *before* the class meeting in question.

- **March 30:** introduction, overview, and costly state verification
  - Claessens, Stijn and M. Ayhan Kose (2017): “Macroeconomic Implications of Financial Imperfections: A Survey.” World Bank Policy Research Paper 8260. ([link](#))
  - Quadrini, Vincenzo (2011): “Financial Frictions in Macroeconomic Fluctuations.” *Federal Reserve Bank of Richmond Economic Quarterly* 97(3): 209-254. ([link](#))
- **April 6:** DSGE model with agency costs and fluctuations
  - Bernanke, Ben S. and Mark Gertler (1989): “Agency Costs, Net Worth, and Business Fluctuations.” *American Economic Review* 79(1): 14-31. ([link](#))
  - Carlstrom, Charles and Timothy S. Fuerst (1997): “Agency Costs, Net Worth, and Business Fluctuations: A Computable General Equilibrium Analysis.” *American Economic Review* 87(5): 893-910. ([link](#))
- **April 13:** the financial accelerator and applications

- Bernanke, Ben, Mark Gertler, and Simon Gilchrist (1999): “The Financial Accelerator in a Quantitative Business Cycle Framework.” In *Handbook of Macroeconomics* Volume 1.C, edited by John B. Taylor and Michael Woodford. ([link](#))
- Christiano, Lawrence, Roberto Motto, and Massimo Rostagno (2014). “Risk Shocks.” *American Economic Review* 104(1): 27-65. ([link](#))
- Carlstrom, Charles, Fuerst, Timothy S., and Matthias Paustian (2016): “Optimal Contracts, Aggregate Risk, and the Financial Accelerator.” *American Economic Journal: Macroeconomics* 8(1): 119-147. ([link](#))
- **April 20:** limited enforcement constraints and credit cycles
  - Kiyotaki, Nobuhiro and John Moore (1997): “Credit Cycles.” *Journal of Political Economy* 105(2): 211-248. ([link](#))
  - Iacoviello, Matteo (2005): “House Prices, Borrowing Constraints, and Monetary Policy in the Business Cycle.” *American Economic Review* 95(3): 739-764. ([link](#))
- **April 27:** macroeconomic model with financial shocks; the term premium
  - Jermann, Urban and Vincenzo Quadrini (2011): “Macroeconomic Effects of Financial Shocks.” *American Economic Review* 102(1): 238-271. ([link](#))
  - Rudebusch, Glenn and Eric Swanson (2012): “The Bond Premium in a DSGE Model with Long-Run Real and Nominal Risks.” *American Economic Journal: Macroeconomics* 4(1): 105-143. ([link](#))
- **May 4:** segmented markets and quantitative easing
  - Gertler, Mark and Peter Karadi (2011): “A Model of Unconventional Monetary Policy.” *Journal of Monetary Economics* 58(1): 17-34. ([link](#))
  - Gertler, Mark and Peter Karadi (2013): “QE1 vs. 2 vs. 3 vs. . . . : A Framework for Analyzing Large-Scale Asset Purchases as a Monetary Policy Tool.” *International Journal of Central Banking* 9(S1): 5-53. ([link](#))
  - Carlstrom, Charles, Timothy S. Fuerst, and Matthias Paustian (2017): “Targeting Long Rates in a Model with Segmented Markets.” *American Economic Journal: Macroeconomics* 9(1): 205-242. ([link](#))
- **May 11:** models of unconventional monetary policy
  - Sims, Eric and Jing Cynthia Wu (2021): “Evaluating Central Banks’ Tool Kit: Past, Present, and Future.” *Journal of Monetary Economics* ([link](#))
  - Sims, Eric, Jing Cynthia Wu, and Ji Zhang (2020): “The Four Equation New Keynesian Model.” Working paper. ([link](#))
  - Sims, Eric and Jing Cynthia Wu (2020): “Are QE and Conventional Monetary Policy Substitutable?” *International Journal of Central Banking* 16(1): 195-230 ([link](#))