AECO 803 Fall 2026
TTh: 10:30 - 11:50

Ph.D. Topics Course: Quantitative Macro-Labor

Professor Benjamin S. Griffy
University at Albany, SUNY

1 Overview and Objectives

This course is focused on the empirical foundations and theoretical implications of wage dispersion, wealth inequality, income risk, and the resulting consumption risk. The goal of this course is to provide students with a set of empirical regularities about income and consumption risk, theoretical and quantitative explanations for these observations, and computational tools to provide further and better explanations for the behavior of individuals in the aggregate economy.

2 Contact Information

- Name: Ben Griffy
- I can be reached via email: bgriffy@albany.edu
- I will be holding office hours on Thursdays: 2:30-3:30pm in my office, Catskill 383.

3 Course Requirements

3.1 Course Materials

- There is no explicitly required textbook for this class; nor is there a specifically required programming language for applicable assignments. Below are listed some suggested reference material. For programming languages, you may choose whatever works best for you. I would suggest Matlab or Julia (or Python if you really must) for assignments that involve solving dynamic programming, and Stata or R for assignments that involve data. These are the languages with which I am most familiar and therefore most likely to be able to help you if you run into any problems.

my$_{p}ubs$

Note: These texts are NOT required, but may occasionally provide useful references:

- N.L. Stokey, R.E. Lucas, and E.C. Prescott. *Recursive Methods in Economic Dynamics*. Harvard University Press, 1989. ISBN 9780674750968. URL https://books.google.com/books?id=v-W6AAAAIAAJ
- L. Ljungqvist and T.J. Sargent. *Recursive Macroeconomic Theory*. The MIT Press. MIT Press, 2018. ISBN 9780262348737. URL https://books.google.com/books?id=Jm1qDwAAQBAJ
- Christopher A. Pissarides. *Equilibrium Unemployment Theory, 2nd Edition*, volume 1 of *MIT Press Books*. The MIT Press, January 2000. ISBN ARRAY(0x40731830). URL https://ideas.repec.org/b/mtp/titles/0262161877.html
- David N DeJong and Chetan Dave. *Structural macroeconometrics*. Princeton University Press, 2011
- Dale T. Mortensen. *Wage Dispersion: Why Are Similar Workers Paid Differently?*, volume 1 of *MIT Press Books*. The MIT Press, June 2005. URL http://ideas.repec.org/b/mtp/titles/0262633191.html
- Richard Rogerson, Robert Shimer, and Randall Wright. Search-theoretic models of the labor market: A survey. *Journal of Economic Literature*, 43(4):959–988, December 2005. doi: 10.1257/002205105775362014. URL http://www.aeaweb.org/articles?id=10.1257/002205105775362014
- Jonathan Heathcote, Kjetil Storesletten, and Giovanni L. Violante. Quantitative Macroeconomics with Heterogeneous Households. NBER Working Papers 14768, National Bureau of Economic Research, Inc, March 2009. URL https://ideas.repec.org/p/nbr/nberwo/14768.html
- Fatih Guvenen. Macroeconomics with heterogeneity: A practical guide. Working Paper 17622, National Bureau of Economic Research, November 2011. URL http://www.nber.org/papers/w17622
- T.F. Cooley. *Frontiers of Business Cycle Research*. Princeton University Press, 1995. ISBN 9780691043234. URL https://books.google.com/books?id=hfTf0u4JuRsC
- Sargent and Stachurski Quant-Econ
- I will update this list as needed in the class.

For programming languages, it **DOES** matter what version you install, and what repository you install from. I suggest the following:

- Python: Anaconda.
- Julia: Current version.

- R: RStudio.
- Stata: MP if possible.
- Matlab: Current version.

You will be required to turn in all (non-LaTeX) code used to produce assignments, and required to turn in all assignments in LaTeX. To assist with learning LaTeX, I will publish all documents I produce in the course both as PDFs and in LaTeX.

3.2 Course Prerequisites

- Have finished the first-year PhD macroeconomics sequence, or obtained permission from me to enroll in course.

4 Grading

- Homework and Discussion: 30%. Homework must be turned in using LaTeX
- Introduction/Research Proposal: 20%
- Data project: 20%
- Model project: 30%
- Note: I don't intend to have any exams in this course, but will require presentations for various papers as well as the projects in class.

5 Tentative Course Outline

Introduction

Date	Description
Week 1 (Aug. 24th - Aug. 28th):	
• Topics:	• Introduction to wage dispersion • Income inequality vs. income risk • Consumption risk • Suggested programming languages and references
• Readings:	• None.
• Assignments:	• Install programming languages and LaTeX

Estimating Income Processes and Consumption Risk

Date	Description
Week 2 (Aug. 31st - Sept. 4th):	
• Topics:	• Statistical models of income risk • Estimating consumption risk
• Readings:	• Guvenen [2009] • Storesletten et al. [2004] • Deaton [1991]
• Assignments:	• Email idea for Research Paper.

Wage and Income Dispersion via Frictional Labor Markets

Date	**Description**
Week 3 (Sept. 7th - Sept. 11th):	
• Topics:	• The McCall Model
• Readings:	• Rogerson et al. [2005]
Week 4 (Sept. 14th - Sept. 18th):	
• Topics:	• Present introduction/idea for research paper • On-the-Job Search
• Readings:	• Burdett and Mortensen [1998]
• Assignments:	• TBD.
Week 5 (Sept. 21st - Sept. 25th):	
• Topics:	• Extensions of On-the-Job Search • Wage-Tenure Contracts • Sequential Auctions
• Readings:	• TBD.
• Assignments:	• Turn in introduction/outline for research paper at start of week.
Week 6 (Sept. 28th - Oct. 2nd):	
• Topics:	• Extensions of On-the-Job Search • Equilibrium Labor Markets: the DMP Model • Endogenous Separations • Bargaining
• Readings:	• TBD.

Wage and Income Dispersion via Frictional Labor Markets (Cont'd)

Date	**Description**
Week 7 (Oct. 5th - Oct. 9th):	
• Topics:	• The DMP Model • Endogenous Separations • Directed Search • Solution Methods.
• Readings:	• TBD.
• Assignments:	• Solving search models homework.
Week 8 (Oct. 12th - Oct. 16th):	
• Topics:	• Solution Methods.
• Readings:	• TBD.
• Assignments:	• TBD.

Heterogeneity and Consumption Risk

Date	Description
Week 9 (Oct. 19th - Oct. 23rd):	
• Topics:	• Heterogeneous agent models • Krussell-Smith
• Readings:	• Huggett [1993] • Aiyagari [1994] • Krusell and Smith [1998]
Week 10 (Oct. 26th - Oct. 30th):	
• Topics:	• Data project presentations.
• Readings:	• TBD.
• Assignments:	• Data project due at end of week.
Week 11 (Nov. 4th - Nov. 8th):	
• Topics:	• Solution methods • Inequality in incomplete markets
• Readings:	• Huggett et al. [2011]
• Assignments:	• TBD.
Week 12 (Nov. 9th - Nov. 13th):	
• Topics:	• Search model extensions • More heterogeneity in BRE models.
• Readings:	• TBD.
• Assignments:	• Solving heterogeneous agent models homework

Other Topics (TBD)

Date	Description
Week 13 (Nov. 14th - Nov. 18th):	
• Topics:	• Calibration and estimation(?) • TBD
• Readings:	• Kydland and Prescott [1996]
• Assignments:	• Turn in first draft of model project.

Wrapping-Up

Date	Description
Week 14 (Nov. 23rd - Nov. 27th):	
• Topics:	• Thanksgiving Break! No classes.
• Readings:	• TBD.
• Assignments:	• TBD.
Week 15 (Nov. 31st - Dec. 4th):	
• Topics:	• Presentations of Final Projects
• Readings:	• TBD.
• Assignments:	• TBD.
Finals Week 16 (Dec. 7th - Dec. 15th):	
• Topics:	• Presentations of Final Projects (if needed)
• Readings:	• TBD.
• Assignments:	• Revised draft of 3 projects due on last day of course.

References

S Rao Aiyagari. Uninsured idiosyncratic risk and aggregate saving. *The Quarterly Journal of Economics*, 109(3):659–684, 1994.

Kenneth Burdett and Dale T Mortensen. Wage differentials, employer size, and unemployment. *International Economic Review*, pages 257–273, 1998.

T.F. Cooley. *Frontiers of Business Cycle Research*. Princeton University Press, 1995. ISBN 9780691043234. URL https://books.google.com/books?id=hfTf0u4JuRsC.

Angus Deaton. Saving and Liquidity Constraints. *Econometrica*, 59(5):1221–1248, September 1991. URL https://ideas.repec.org/a/ecm/emetrp/v59y1991i5p1221-48.html.

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Jonathan Heathcote, Kjetil Storesletten, and Giovanni L. Violante. Quantitative Macroeconomics with Heterogeneous Households. NBER Working Papers 14768, National Bureau of Economic Research, Inc, March 2009. URL https://ideas.repec.org/p/nbr/nberwo/14768.html.

Mark Huggett. The risk-free rate in heterogeneous-agent incomplete-insurance economies. *Journal of economic Dynamics and Control*, 17(5):953–969, 1993.

Mark Huggett, Gustavo Ventura, and Amir Yaron. Sources of lifetime inequality. *American Economic Review*, 101(7):2923–54, 2011.

Per Krusell and Anthony A Smith, Jr. Income and wealth heterogeneity in the macroeconomy. *Journal of political Economy*, 106(5):867–896, 1998.

Finn E Kydland and Edward C Prescott. The computational experiment: An econometric tool. *Journal of economic perspectives*, 10(1):69–85, 1996.

L. Ljungqvist and T.J. Sargent. *Recursive Macroeconomic Theory*. The MIT Press. MIT Press, 2018. ISBN 9780262348737. URL https://books.google.com/books?id=Jm1qDwAAQBAJ.

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Christopher A. Pissarides. *Equilibrium Unemployment Theory, 2nd Edition*, volume 1 of *MIT Press Books*. The MIT Press, January 2000. ISBN ARRAY(0x40731830). URL https://ideas.repec.org/b/mtp/titles/0262161877.html.

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N.L. Stokey, R.E. Lucas, and E.C. Prescott. *Recursive Methods in Economic Dynamics*. Harvard University Press, 1989. ISBN 9780674750968. URL https://books.google.com/books?id=v-W6AAAAIAAJ.

Kjetil Storesletten, Christopher I. Telmer, and Amir Yaron. Consumption and risk sharing over the life cycle. *Journal of Monetary Economics*, 51(3):609–633, April 2004. URL https://ideas.repec.org/a/eee/moneco/v51y2004i3p609-633.html.