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Ec 102: Advanced Macroeconomics

Department of Economics

Swarthmore College

Fall 2020

This course is an advanced treatment of the topics in Macroeconomics that you studied in Ec1 and Ec21. We will learn the tools needed to answer the following questions, among others. Why and how do countries grow in the long run? How do short run fluctuations around the long run path look like? What are the sources of recessions and booms? Why is there unemployment? What are the sources of inflation? How do government spending and taxation affect economic growth and fluctuations? How does monetary policy work?

I have also added two new units on very timely and fascinating topics. The first is on financial crises. We will try to understand why they happen. We will also learn about the role of frictions in credit markets in exacerbating the effects of aggregate shocks. The second is on the relationship between macroeconomic policy and social justice. We will look at the role played by monetary policy in affecting income distribution.

Since the course takes an advanced approach to these issues, we will address these questions using mathematical models and techniques. These will be important tools to get more detailed and accurate insights and to be able to quantify the expected effects of alternative macroeconomic policies.

We will use a main textbook (see details below) and we will complement it with materials from both other textbooks and published academic papers.

Textbook: David Romer, “Advanced Macroeconomics”, 4th edition, McGraw Hill.

Also, **Fundamental Methods of Mathematical Economics** by Alpha C. Chiang will be a great reference to brush up on your math as needed for the economic models we will study.

Additional Materials

For each week you will get:

- lecture notes (in the form of class slides) as a reading guide for that week’s chapter,
- a problem set with its answer key, and
- the electronic versions of readings (other than the textbook)

All these materials and will be posted in my Moodle site.

Class Sessions: Mondays and Wednesdays 12:45pm-3:15pm via Zoom.

For students logging in from Asia there will also be sessions on Mondays and Wednesdays 10am-11:30am.

Office Hours: For students who will not be on campus this fall, by appointment via Zoom. For students on campus, Fridays 1-2:30pm (Kohlberg 209). The course will also have an in-person class component on Fridays at 3pm-5pm (Kohlberg 230).

Course Requirements

The course will be divided in 12 units/weeks. The material for each week will be posted in advance in Moodle. You will be responsible for reading the entire material before class. Class will then focus on first, a discussion of the material and second, solving a problem set consisting of 2-3 problems. Each week you will be assigned another 2-3 problems to work on your own or in small groups.

Course Grading

Homework assignments (12) – 5 points each for a total of 60/100 points.

Final project (take-home exam) – 20/100 points.

Class participation - 20/100 points.

I expect each of you to actively engage in both conceptual discussions on the material and the mathematical solution of problems in class. Mistakes are OK (we all make them and we all learn from them). Silence is not.

Ec 102 Zoom Community Etiquette

To promote an engaging environment in which we can all contribute and we all learn from each other, I ask that you please have your cameras on at all times. While you will be on mute when you are not speaking (to minimize background noise and disruption), I expect you to be unmuting yourself and participating all the time. You can raise your “Zoom hand” to take turns to participate.

Accommodations Statement

If you believe you need accommodations for a disability or a chronic medical condition, please contact Student Disability Services via email at studentdisabilityservices@swarthmore.edu

to arrange an appointment to discuss your needs. As appropriate, the office will issue students with documented disabilities or medical conditions a formal Accommodations Letter. Since accommodations require early planning and are not retroactive, please contact Student Disability Services as soon as possible. For details about the accommodations process, [visit the Student Disability Services website](#).

You are also welcome to contact me privately to discuss your academic needs. However, all disability-related accommodations must be arranged, in advance, through Student Disability Services.

Week 1: Infinite-Horizon and Overlapping Generations Models

- The Ramsey-Cass-Koopmans Model
 - o The behavior of households and firms
 - o The stationary state of the model and dynamics around it
 - o The effects of a change in the discount rate
 - o Demand shocks
- The Diamond Model
 - o The behavior of households
 - o The possibility of dynamic inefficiency

References

[R] Romer – Advanced Macroeconomics 4th edition – chapter 2, pp. 49-100.

[R] Ramsey, F. (1928), “A Mathematical Theory of Saving”, *Economic Journal*, 38, December, pp. 543-559.

Cass, D. (1965), “Optimum Growth in an Aggregative Model of Capital Accumulation”, *Review of Economic Studies*, 32, July, pp. 233-240.

Koopmans, T. (1965), “On the Concept of Optimal Economic Growth”, in *The Economic Approach to Development Planning*. Amsterdam. Elsevier.

Diamond, P. (1965), “National Debt in a Neoclassical Growth Model”, *American Economic Review*, 55, December, pp. 1125-1150.

Week 2: Real-Business-Cycle Theory

- o Some facts about economic fluctuations
- o A baseline RBC model
- o Household behavior
- o Analytical solution for the log utility and full depreciation case
- o Exogenous aggregate demand shocks and supply/technology shocks
- o Calibration and assessing the model

References

[R] Romer – Advanced Macroeconomics 4th edition – chapter 5, pp. 189-237.

Week 3: Consumption

- The Permanent-Income Hypothesis
- The Random-Walk Hypothesis
- Empirical tests and evidence
- The interest rate and savings
- Consumption and risky assets
- Liquidity constraints and borrowing

References

[R] Romer – Advanced Macroeconomics 4th edition – chapter 8, pp. 365-404.

Modigliani, F. and R. Brumberg (1954), “Utility Analysis and the Consumption Function: An Interpretation of Cross-Section Data”. In Kenneth K. Kurihara ed. *Post-Keynesian Economics*, 388-436. New Brunswick, NJ: Rutgers University Press.

Friedman, M. (1957), *A Theory of the Consumption Function*. Princeton, NJ: Princeton University Press.

Week 4: Investment

- Investment and the cost of capital
- Adjustment costs: internal and external
- Tobin’s q
- Steady-state and dynamics around it
- The effects of taxation

References

[R] Romer – Advanced Macroeconomics 4th edition – chapter 9, pp. 405-455. Sections 9.1 to 9.5 only.

Hall, R. and D. Jorgenson (1967), “Tax Policy and Investment Behavior”, *American Economic Review*, Vol. 57, June, pp. 391-414.

Abel, A. (1982), “Dynamic Effects of Permanent and Temporary Tax Policies in a q Model of Investment”, *Journal of Monetary Economics*, Vol. 9, May, pp. 353-373.

Hayashi, F. (1982), “Tobin’s Marginal q and the Average q : A Neoclassical Interpretation”, *Econometrica*, Vol. 50, January, pp. 213-224.

Summers, L. (1981), “Taxation and Corporate Investment: A q -Theory Approach”, *Brookings Papers on Economic Activity*, #1, pp. 67-127.

Week 5: Unemployment

- Theories of unemployment
- The efficiency-wage model
- Search and matching models
- An application: frictions in both labor and financial markets

References

[R] Romer – Advanced Macroeconomics 4th edition – chapter 10, pp. 456-512. Skip sections 10.3, 10.4 and 10.5 and 10.8.

Pissarides, C. (1985), “Short-Run Dynamics of Unemployment, Vacancies and Real Wages”, *American Economic Review*, Vol. 75, September, pp. 676-690.

Mortensen, D. (1986), “Job Search and Labor Market Analysis”, in Orley Ashenfelter and Richard Layard eds., *Handbook of Labor Economics*, Vol. 2, pp. 849-919. Amsterdam: Elsevier.

Mortensen, D. and C. Pissarides (1994), “Job Creation and Job Destruction in the Theory of Unemployment”, *Review of Economic Studies*, Vol. 61, July, pp. 397-415.

Pissarides, C. (2000), *Equilibrium Unemployment Theory*, 2nd. Ed., Cambridge, MA: MIT Press.

Finkelstein-Shapiro, A. and M.P. Olivero (2020), “Lending Relationships and Labor Market Dynamics”, *European Economic Review* (forthcoming).

Week 6: Budget Deficits and Fiscal Policy

- The Government budget constraint
- Ponzi games
- The Ricardian-Equivalence Result and empirical tests
- Tax smoothing
- Expansionary fiscal contractions
- The costs of deficits
- Additional channels of transmission of fiscal policy

References

[R] Romer – Advanced Macroeconomics 4th edition – chapter 12, pp. 584-643. Skip sections 12.5-12.8 and 12.10.

Lucas, R. and N. Stokey (1983). “Optimal Fiscal and Monetary Policy in an Economy without Capital”, *Journal of Monetary Economics*, Vol. 12, July, pp. 55-93. On tax smoothing.

Obstfeld, M. and K. Rogoff (1996), *Foundations of International Macroeconomics*, Cambridge, MA: MIT Press. Chapter 6 on debt crises.

Week 7: Nominal Rigidities

- Exogenous nominal rigidity
 - o A baseline case of fixed prices
 - o The Keynes's model of fixed wages
 - o The Phillips curve and the inflation-unemployment trade-off
- Microeconomic Foundations of Incomplete Nominal Adjustment
 - o A model of imperfect competition and price-setting
- Real Rigidity and its sources

References

[R] Romer–Advanced Macroeconomics 4th edition–chapter 6, pp. 238-311. Skip sections 6.3, 6.6 and 6.8- 6.10

Week 8: Dynamic Stochastic General Equilibrium Models of Fluctuations

- o Introduction to DSGE Models
- o The building blocks of dynamic New Keynesian models
- o Predetermined prices: The Fischer model
- o Fixed prices: The Taylor model
- o The Calvo Model and the New Keynesian Phillips curve
- o Models of staggered price adjustment-inflation inertia: The Mankiw-Reis Model
- o The canonical New Keynesian model

References

[R] Romer – Advanced Macroeconomics 4th edition – chapter 7, pp. 312-364. Skip sections 7.5, 7.6, 7.7 and 7.9.

Olivero, M.P. and M. Airaudo (2019), “Optimal Monetary Policy with Countercyclical Credit Spreads”, *Journal of Money, Credit and Banking*, January.
<http://www.mariapia-olivero.com/uploads/5/5/5/6/55562983/jmcb-airaudo.pdf>

Cooley, T. Ed. *Frontiers of Business Cycle Research*. Princeton, NJ: Princeton University Press.

Week 9: Inflation and Monetary Policy

- Inflation, money growth and interest rates
- Monetary policy and the term structure of interest rates
- Costs and benefits of inflation
- Stabilization policy
- Optimal monetary policy
- The divine coincidence and when it breaks
- The dynamic inconsistency of low-inflation monetary policy
- Seignorage and inflation
- Causes of hyperinflation

References

[R] Romer – Advanced Macroeconomics 4th edition – chapter 11, pp. 513-583. Skip sections 11.6 and 11.8.

Goodfriend, M. and R. King (1997), “The New Neoclassical Synthesis and the Role of Monetary Policy”, *NBER Macroeconomics Annual* 12, pp. 231-283. On the divine coincidence.

Blanchard, O. and J. Gali (2007), “Real Wage Rigidities and the New Keynesian Model”, *Journal of Money, Credit and Banking*, Vol. 39, February, pp. 35-65. On the divine coincidence.

Kydland, F. and E. Prescott (1977), “Rules Rather than Discretion: The Inconsistency of Optimal Plans”, *Journal of Political Economy*, Vol. 85, June, pp. 473-492. On dynamic inconsistency.

Phelps, E. (1973), “Inflation in the Theory of Public Finance”, *Swedish Journal of Economics*, Vol. 75, March, pp. 67-82. On money growth as an inflation tax.

Sargent, T. (1982), “The End of Four Big Inflations”, in Robert Hall ed. *Inflation*, pp. 41-98, Chicago: University of Chicago Press. On hyperinflations and fiscal causes.

Week 10: Monetary Policy and Income Distribution

- The channels through which interest rates changes alter income distribution
- Can macroeconomic policy contribute to social justice?

References

[R] Bernanke, Ben (2015), “Monetary Policy and Income Inequality”, *Brookings Institution blog post*, June 1st, 2015.

[R] Amaral, Pedro (2017), “Monetary Policy and Inequality”, *Economic Commentary*, Federal Reserve Bank of Cleveland #2017-1, January.

Coibion, O., Y. Gorodnichenko, L. Kueng, and J. Silvia (2012), “Innocent Bystanders? Monetary Policy and Inequality in the U.S.”, *NBER Working Paper Series*, wp #18170, National Bureau of Economic Research, June. Retrieved from <http://www.nber.org/papers/w18170>

Cravino, J., T. Lan and A. Levchenko (2020), “Price Stickiness Along the Income Distribution and the Effects of Monetary Policy,” *Journal of Monetary Economics*, Vol. 110: 19-32.

Week 11: Financial Markets and the Global Financial Crisis

- Credit frictions as a transmission mechanism of exogenous aggregate shocks
- The Bernanke-Gertler-Gilchrist Financial Accelerator Model
- The Kiyotaki-Moore Model
- Models of frictions in banking / on the supply-side of credit markets

References

Romer – Advanced Macroeconomics 4th edition – Epilogue: The Financial and Macroeconomic Crisis of 2008 and Beyond.

Mark Gertler and Simon Gilchrist (henceforth G&G), "What Happened: Financial Factors in the Great Recession", *Journal of Economic Perspectives*, Summer 2018, Vol. 32(3), pp. 3-30.

Bernanke and Blinder, "Credit, Money and Aggregate Demand", *American Economic Review*, May 1988, pp. 435-439.

Kiyotaki, N. and J. Moore (1997), "Credit Cycles", *Journal of Political Economy*, Vol. 105, No. 2, April, pp. 211-248.

Bernanke, Ben, M. Gertler and S. Gilchrist (1999), "The Financial Accelerator in a Quantitative Business Cycle Framework", NBER Working Paper Series, wp #6455, National Bureau of Economic Research.

Week 12: Endogenous Growth

- Framework and assumptions
- The general case: The AK model
- The Lucas human capital model: A one-sector model with physical and human capital
- The nature of knowledge and the determinants of the allocation of resources to R&D

References

[R] Romer – Advanced Macroeconomics 4th edition – Chapter 3, pp. 101-145. Skip sections 3.6, 3.7 and 3.8.

Robert Barro & Xavier Sala-i-Martin – Economic Growth – Chapter 4, sections 4.2 and 4.5 only.