

EC392 - Advanced Topics in Mathematical Economics: Economic Growth

Pedro de Araujo

Mathias 131 - Block 5 - Spring 2015

CONTACT INFORMATION	<p><i>Office:</i> Palmer Hall 114i <i>Phone:</i> (719) 389-6470 <i>E-mail:</i> pedro@coloradocollege.edu <i>Course Webpage:</i> http://faculty1.coloradocollege.edu/~pdearaujo/ec392_growth.html</p>
OFFICE HOURS	Monday to Thursday from 14:00 to 15:00, or by appointment
COURSE PREREQUISITES	<p>Intermediate Microeconomic Theory (EC207), Intermediate Macroeconomic Theory (EC209), or Consent of Instructor (COI).</p> <p><i>Familiarity with Linear Algebra and Differential Equations is a plus.</i></p>
COURSE OBJECTIVE	<p>This course will introduce you to different macroeconomic models of economic growth. We will cover both theoretical and empirical models. Even though this is not a math course, but an economics course with mathematical applications, we will use mathematical techniques in order to solve such models. The course will also focus on model interpretation and applications. The standard macroeconomic problem is the maximization of a concave or quasi-concave objective function subject to linear constraints. We will solve and analyze such problems using methods such as: the Lagrange method and phase diagrams. Also, we will focus part of the course on empirical methodology as many economic growth papers are empirical in nature. The main goal here is, therefore, to enable you to have a good understanding of published papers in economic growth both empirical and theoretical. I expect that by the end of the block, you will be able to offer suggestions on how to improve research in economic growth by producing an original paper in this field.</p>
COURSE STRUCTURE	<p>There will be three parts to this course. First, we will tackle many theoretical models that investigate the main causes of economic growth. Second, we will test some of these models' implications by studying the empirical growth literature. Third, you will have to produce an original piece of research that ties both theory and empirical methodologies. Throughout this block, you will have to present your work several times in written and spoken formats. On top of this, you will be competing for a fictitious job and explicitly writing reflections on your progress.</p>
REQUIRED TEXTBOOK	None
OPTIONAL TEXTBOOKS	<p>Romer, D., "Advanced Macroeconomics," McGraw-Hill Irwin, 4th ed., 2012 Acemoglu, D., "Introduction to Modern Economic Growth," Princeton Press, 1st ed., 2009</p>

Cameron, C. A. and Trivedi, P. K., "Microeconometrics Using Stata," Stata Press, 1st ed. (revised), 2010

Thomson, W., "A Guide for the Young Economist," MIT Press, 1st ed., 2001

COURSE Pre-Test - 5%
 ASSIGNMENTS Selected Problems - 15%
 AND WEIGHTS Project - 60% (Research and Writing - 30%, Presentations - 30%)
 Job Interview - 15%
 Self-Reflections - 5%

GRADE DISTRIBUTION	A	100-94	B	88-83	C	78-73	D	60-50
	A-	94-90	B-	83-80	C-	73-70	NC	50-0
	B+	90-88	C+	80-78	D+	70-60		

Even though weights are assigned to each activity and the course has a numerical grade distribution, I will only assign letter grades to your work. And you will be constantly updated on your progress during the block.

PRE-TEST A pre-test will be administered in the first day of class to aid in assessing current knowledge as well as helping me tailor the course more appropriately. Grades will be based on effort and not necessarily on content.

PROBLEMS Instead of having problem sets and exams, I will assign several problems throughout the block that will assist you in understanding the material covered in class. I am expecting that you work in groups on these. However, I will choose a subset of these problems to be graded. And in this case, you will need to complete them by yourself. For every problem, you can consult your notes, the textbooks, and any material posted on the class webpage.

PROJECT This class will comprise of a comprehensive project that will involve the production of a final paper and presentation. You should expect that, by the end of the block, your project will give you enough insight about a specific topic surrounding economic growth. You will have produced a short, but complete paper, and will have the chance of presenting on your chosen topic multiple times throughout the block. You will also constantly write and improve on your paper. Many deadlines will be established in order to get you working on this assignment from day 1. Throughout the block, I will give you specific instructions on how to develop this assignment.

JOB INTERVIEW ASSIGNMENT A job add has been posted on SUCCESS, which is the Career Center online job board. You will have to log into SUCCESS in order to apply for the job. The job is for a Research Analyst position with the FIAD Group (job #12418). You should follow all of the instructions and abide by all deadlines.

Later, all qualified candidates will be receiving phone calls to schedule a 30 minute job interview. I will not directly participate in this process, so you cannot contact me for assistance. If you fail to schedule your interview, you forfeit the points for this assignment. We will spend a great portion of the last day of class going over these interviews.

SELF-
REFLECTIONS

Throughout the block, you will have 17 self reflective activities that you are required to complete. These activities are designed to get you to reflect about the class, your study habits, organization, and your ability to think about how you think. The hope here is that you develop individualized learning processes that you can transfer to other classes and other experiences you will encounter in the future.

TENTATIVE
COURSE
OUTLINE

Week 1:

Pre-Test

Stylized Growth Facts and Motivation (Acemoglu chapter 1, Romer chapter 1)

Theoretical Models:

Solow Growth Model (Romer chapter 1)

Infinitely Lived Agent Model - Ramsey (Romer chapter 2)

Overlapping Generations Model - Diamond (Romer chapter 2)

Week 2:

Models of Research and Development (Romer chapter 3)

Models with Human Capital (Romer chapter 4)

Other Models (if time permits)

Empirical Models:

Growth Accounting

Cross-Sectional Growth Regressions

Cross-Country Coverage Revisited

Determinants of Growth Revisited

Week 3:

Endogeneity Issues

Panel Growth Regressions

Determinants of Growth Revisited

Week 4:

Interviews

Debriefing

Final Presentations

ATTENDANCE

Attendance is not mandatory; however, do not expect me to cover material taught in class during office hours if you were not present for that particular day unless you have proper documentation justifying your absence.

CHEATING

For every assignment in this course you must follow CC's honor code. If you have not yet done so, I encourage you to read the honor code, which can be found in the Pathfinder under Honor Council Constitution. The penalty for cheating in this course is a final grade of no credit (NC).

ACCESSIBILITY
NEEDS

If you have a disability and require accommodations for this course, please speak with me by no later than Wednesday, January 21, so that your needs may be appropriately met. If you have not already done so, you will need to register with Accessibility Resources (Learning Commons in Tutt Library, 227-8285), the office responsible for coordinating accommodations and services for students with disabilities.