باسمه تعالی

Syllabus: Advanced Macroeconomics I

Instructor: Nasser Elahi
Term: Fall 2025
Time & Location: Saturdays, 8:30 – 10:30, Room B306
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Office Hours: Mondays, 15:30 – 17:30, Room C227

I. Course Overview amd Philosophy

This course is the first in the graduate macroeconomics sequence, providing a rigorous foundation in modern growth theory. We will develop the core analytical tools; mathematical, theoretical, and empirical, used to understand long-run economic prosperity, cross-country income differences, and the mechanics of growth. The approach is deeply analytical: you will learn to derive, solve, and critically evaluate models. The core scaffold is **Romer (5th ed.)**, which we will augment with deeper dives into optimization theory, empirical applications, and alternative modeling perspectives from **Acemoglu (2009)** and foundational journal articles.

II. Learning Objectives

Upon completion, you will be able to:

- **Formulate, solve, and analyze** the canonical models of economic growth.
- **Derive and interpret** equations of motion, steady-states, and transitional dynamics using tools of dynamic optimization.
- **Compare and contrast** assumptions and implications of different growth frameworks (exogenous vs. endogenous, infinite vs. finite horizons).
- **Apply** models to explain income differences across nations, evaluating the roles of factors, productivity, and institutions.
- **Conduct** basic empirical growth analysis, including growth accounting and regression-based tests of theoretical implications.

III. Required & Supplementary Materials

- **Core Required Text:** Romer, David. *Advanced Macroeconomics*, 5th Edition. McGraw-Hill, 2018.
- **Primary Supplementary Text:** Acemoglu, Daron. *Introduction to Modern Economic Growth*. Princeton University Press, 2009. (Referred to as "AMEG")

- **Supplementary Readings:** Selected journal articles.

IV. Assessment and Grading

Component	Score	Description	Due Date
Class Paper	4	A 12-15 page class paper on a topic related to economic growth. The paper can be primarily theoretical, empirical, or a synthesis of the literature.	Saturday, Jan 10
Engagement & Discussion	3	Based on consistent, thoughtful contributions to weekly discussions. Quality over quantity. Serving as a "discussion leader" fulfills this requirement.	Ongoing
Midterm Exam	5	In-class exam covering the first two parts (Solow, Ramsey, OLG).	Saturday, Nov 8
Final Exam	8	Comprehensive final exam, emphasizing Endogenous Growth and Cross-Country Income Differences.	Saturday, Jan 10
Total	**20**		

V. Detailed Course Schedule & Integrated Readings

Week	Date (2025)	Topics	Core Reading (Romer)	Supplementary Reading (Acemoglu et al.)
1	Sep 13	**Introduction & The Solow Model: Basics** Stylized facts. Model assumptions and dynamics.	Ch. 1.1 - 1.3	AMEG, Ch. 2.1 - 2.3

2	Sep 20	**The Solow Model: Steady-State & Golden Rule** Solving for the steady-state. Golden Rule of capital accumulation.	Ch. 1.3 - 1.4	-
3	Sep 27	**The Solow Model: Empirics & Convergence** Speed of convergence. Absolute vs. conditional convergence.	Ch. 1.4 - 1.7	AMEG, Ch. 3.1 - 3.3; MRW (1992)
4	Oct 4	**Ramsey Model: Household Optimization** Intertemporal utility maximization. The Euler Equation.	Ch. 2.1 - 2.4	**AMEG, Ch. 5.1 - 5.7, 5.9**
5	Oct 11	**Ramsey Model: General Equilibrium** Firms and households. The phase diagram.	Ch. 2.5 - 2.7	AMEG, Ch. 6.4, 6.6 - 6.7
6	Oct 18	**Ramsey Model: Saddle Path & Dynamics** Saddle-path stability. Analyzing shocks and policy.	Ch. 2.7, 2.11	-
7	Oct 25	**Overlapping-Generations Model: Basics** Model setup. Household behavior with two-period lives.	Ch. 2.9 - 2.10	AMEG, Ch. 9.1 - 9.4

8	Nov 1	**OLG Model: Dynamics & Inefficiency** Capital accumulation. Dynamic inefficiency.	Ch. 2.10	-
9	**Nov 8**	**MIDTERM EXAM** (Covers Weeks 1-8: Solow, Ramsey, OLG)		
10	Nov 15	**Foundations of Endogenous Growth: AK Model** Escaping diminishing returns.	Ch. 3.1 - 3.2	AMEG, Ch. 11.1 - 11.2
11	Nov 22	**Endogenous Growth: Knowledge Spillovers** Modeling externalities. Social vs. private returns.	Ch. 3.4 - 3.5	AMEG, Ch. 11.4
12	Nov 29	**Endogenous Growth: R&D-Based Models I** Explicit modeling of the R&D sector.	Ch. 3.6	AMEG, Ch. 12.1 - 12.3
13	Dec 6	**Endogenous Growth: R&D-Based Models II** Microfoundations. Monopoly power and innovation.	Ch. 3.6	-
14	Dec 13	**Income Differences: Proximate Causes** Growth accounting. The central role of TFP.	Ch. 4.1 - 4.5	AMEG, Ch. 3.4 - 3.5, 4.1 - 4.2

15	Dec 20	**Income Differences: Fundamental Causes** Institutions, geography, and social infrastructure.	Ch. 4.6 - 4.9	**AMEG, Ch. 4.3-4.6, 18; AJR (2001)**
16	Dec 27	**Course Synthesis & Review** Grand synthesis of models. Frontiers of growth theory.	Review	AMEG, Ch. 15