

	Abel and Bernanke, <u>Macroeconomics</u> , Fourth Edition, 2001	Mathematical Tools Required	Tools Addressed in Michael Klein, <u>Mathematics for Economics</u> , 2001	Relevant Applications in Michael Klein, <u>Mathematics for Economics</u> , 2001
Chapter 1	Introduction to Macroeconomics	Models	Chapter 1	
Chapter 2	The Measurement and Structure of the National Economy Calculating/Understanding Growth	Exponential/logarithmic functions	Chapters 3 and 7	Section 3.3: Doubling Times and the Rule of 70 Section 3.3: Graphing Time Paths of Variables
Chapter 3	Productivity, Output, and Employment Production Functions Marginal products, diminishing marginal productivity, mathematical treatment of labor demand, Cobb-Douglas production function, Factors of Production, Division of National Income	Functions, graphing, slopes, exponents Multivariate calculus, Euler's Theorem, homogeneous functions	Chapter 2 Introduction to calculus in Chapter 6, univariate calculus (7), multivariate calculus (8)	Section 8.3: Growth Accounting Section 11.3: The Constant Elasticity of Substitution Production Function. Section 8.2: Why Doesn't Capital Flow to Poor Countries? Section 8.3: The Division of National Income
Chapter 4	Consumption, Saving, and Investment Consumption and Saving Goods Market Equilibrium	Calculating returns to saving, present value, intertemporal consumption (more advanced) Solving systems of equations, comparative statics	Chapters 3 and 11 Chapter 4	Section 3.2: Annual and Effective Interest Rates Section 11.3: Intertemporal Consumption Section 11.3: College Scholarships and National Savings Section 13.2: Keynesian Income Determination Section 13.3: Multiplier-Accelerator Model
	Appendix: A Formal Model of Consumption and Saving	Multivariate calculus, implicit functions, dynamic optimization	Chapters 8 and 15	Section 15.3: The Life-Cycle Theory of Consumption

Chapter 5	Saving and Investment in the Open Economy Application: The United States as International Debtor Equilibrium in Markets	Present value, growth, rates of change Solving systems of equations Comparative Statics	Chapters 3 and 7 Chapter 4	Section 7.2: Sustainability of Deficits Section 14.2: The Price-Specie Flow Mechanism Section 14.2: The Monetary Model of Exchange Rate Determination Section 14.3: Exchange Rate Overshooting
Chapter 6	Long-Run Economic Growth Sources of Economic Growth The Solow Model and the Golden Rule Technological Progress	Differential calculus, optimization, difference equations (more advanced treatment) Multivariate calculus	Chapters 6-8 Chapters 6-9, 13 (for understanding steady state) Chapter 8	Section 6.3: The International Pattern of Section 9.2: The Golden Rule Section 13.1: Two Models of Economic Growth Section 14.1: Phase Diagrams (Solow Model) Section 15.3: Optimal Growth Section 8.2: Why Doesn't Capital Flow to Developing Countries
Chapter 7	The Asset Market, Money, and Prices Portfolio Allocation and the Demand for Assets Money Growth and Inflation	Integration, difference equations Elasticities, growth rates, difference equations (more advanced), differential equations	Chapters 12 and 13 Chapters 3,7 and 13	Section 3.2: Continuous Compounding Section 3.2: Present Value Section 12.1: Valuing a Stream of Payments Section 12.2: Bond Price Volatility and Bond Maturity Section 13.2:: The Determinations of Stock Prices Section 3.3: Graphing Time Paths of Variables Section 9.2: The Inflation Tax Section 12.3: The Cost of Inflation Section 13.2 Money and Prices Section 14.2: Stability in Monetary Models

Chapter 9	The IS-LM/AD-AS Model Appendix: Algebra of the IS-LM and AD-AS Models	Substitution, comparative statics	Chapters 4 and 6-8	
Chapter 10	Classical Business Cycle Analysis: Market-Clearing Macroeconomics Misperceptions Theory and Nonneutrality of Money	Difference and differential equations	Chapters 13 and 14	Section 13.2: Money and Prices Section 14.2: Stability in Monetary Models
Chapter 11	Keynesian: The Macroeconomics of Wage and Price Rigidity Appendix: The Multiplier	Difference equations	Chapter 13	Section 13.2: Keynesian Income Determination Section 13.3: Multiplier Accelerator Model Section 7.2: The Money Multiplier and the Great Depression
Chapter 12	Unemployment and Inflation	Integration, difference equations	Chapters 12 and 13	Section 4.1: Job Creation and Job Destruction Section 6.3: The International Pattern of Women's Work Section 12.3: The Cost of Inflation
Chapter 13	Exchange Rates, Business cycles, and Macroeconomic Policy in the Open Economy	Differential equations (more advanced)	Chapter 14	Section 14.2: The Price - Specie Flow Mechanism Section 14.2: The Monetary Model of Exchange Rate Determination; Section 14.3: Exchange Rate Overshooting
Chapter 14	Monetary Policy and the Federal Reserve System Rules Versus Discretion Game Theory	Composite functions and chain rule Calculus and optimizations	Chapter 8 Chapters 6-10	Section 7.2: The Money Multiplier and the Great Depression Section 9.2: Rules Versus Discretion in Monetary Policy Section 9.2: Strategic Behavior of Duopolists
Chapter 15	Government Spending and its Financing Burden of Government Debt Seignorage	Calculus Optimization	Chapters 7 and 8 Chapter 9	Section 7.2: Sustainability of Deficits Section 9.2: The Inflation Tax