TOPICS COVERED IN FINAL EXAMINATION

Please notice: The final exam is comprehensive. Sometimes the textbook has more than what I have said in class on a given topic, sometimes it is the other way around. In both cases, I will test you on what we have seen in class. The following is an (almost) exhaustive list of topics covered in class with reference to the relative textbook chapter.

**Budget Constraint (Chapter 2)**

- Definition of budget constraint and budget line;
- How to graph the budget line;
- How the budget line shifts with changes in prices and income;
- Distinguishing dollar prices from relative prices;
- Distinguishing between different types of taxes and subsidies;
- How the budget line is affected by taxes and subsidies of different kind;
- Budget lines with kinks;
- Food Stamp program.

**Preferences (Chapter 3)**

- Preference relation;
- Axioms on preference relation (complete, transitive, reflexive);
- Indifference curves;
- Different types of preferences and related indifference curves: perfect substitutes, perfect complements.
- Properties of indifference curves (can they cross?);
- Monotonic preferences;
- Convex, strictly convex preferences and concave preferences;
- Marginal rate of substitution and its properties.
Utility (Chapter 4)

- What is a utility function;
- Under which conditions a utility function represents a preference relation;
- Plotting indifference curves: perfect substitutes, perfect complements, Cobb-Douglas;
- Marginal utility and its properties;
- Marginal rate of substitution, its relation to marginal utilities, and how to compute it given utility.

Choice (Chapter 5)

- Finding optimal choice on a graph;
- When is tangency between (minus) relative prices and MRS necessary and when is it sufficient to find an optimal choice;
- Interpretation of the tangency condition;
- Tangency with many consumers with different incomes and preferences;
- Finding the optimum with a Cobb-Douglas utility function, and properties of the Cobb-Douglas demand functions;
- Demand functions for different preferences (substitutes, complements, Cobb-Douglas);
- Choosing a tax: income or quantity taxes?

Demand (Chapter 6)

- How demand changes with income: income offer curves and Engel curves for different types of preferences;
- Normal and inferior goods;
- Luxury and necessary goods;
- How demand changes with price: price offer curves and demand curves;
- Ordinary and Giffen goods;
- How demand changes with price of other goods: substitute and complement goods;
- Inverse demand function and curve; interpretations of inverse demand curve.
Consumer’s surplus (Chapter 14)

- Gross consumer’s surplus;
- Consumer’s surplus;
- Different ways of computing costs of higher prices for the consumer: change in consumer’s surplus, compensating variation, equivalent variation;
- What do we need to know to compute each of these measures (utility function or demand function);
- Computing these measures in practice, given a consumer and a change in prices.

Market Demand (Chapter 15)

- Aggregating individual demand functions to obtain aggregate demand functions;
- Price elasticity of demand;
- Income elasticity of demand;
- The Laffer curve.

Equilibrium (Chapter 16)

- Supply and producer’s surplus;
- Competitive markets;
- Determining the equilibrium price and quantity;
- Taxes and their effect on equilibrium prices and quantity;
- Passing along taxes;
- Deadweight loss of a tax;
- Pareto efficiency;
- Price controls: maximum and minimum prices and price targeting using public demand.
Technology (Chapter 18)

- Production function;
- Isoquants;
- Examples of technologies: fixed proportions, perfect substitutes, Cobb-Douglas;
- Input flexibility: marginal products and technical rate of substitution;
- Returns to scale.

Profit Maximization (Chapter 19)

- Objective of the firm;
- Defining economic profits;
- Fixed and variable factors;
- Profit maximization in the short and in the long run;
- Factor demand curves;
- Buying versus renting capital;
- User cost of capital;
- Profits and constant returns to scale technology;
- Meaning of zero profits.

Cost Minimization (Chapter 20)

- Cost function;
- Isocost lines;
- Minimizing costs in the short and in the long run;
- Cost functions and returns to scale.

Cost Curves (Chapter 21)

- Average cost curves;
- Marginal cost curves;
- Long and short run cost curves.
Firm Supply (Chapter 22)
- Demand curve faced by a competitive firm;
- Supply decision of a competitive firm;
- Producer’s surplus and profits of a competitive firm;
- Shutdown condition;
- Long-run supply function.

Industry Supply (Chapter 23)
- Industry equilibrium in the short-run;
- Industry equilibrium in the long-run;
- Taxation in the short-run and in the long-run;
- Economic rents.

Monopoly (Chapter 24)
- Differences between monopolies and competitive markets;
- Profit maximization by a monopolist;
- Deadweight loss of a monopoly;
- Why do monopolies occur;
- Natural monopolies.

Monopoly Behavior (Chapter 25)
- First, second, and third degree price discrimination;
- Bundling;
- Two-part tariff.

Externalities (Chapter 32)
- Consumption externalities;
- Production externalities;
- Emissions trading.