Outline of Materials for Midterm Exam in EEP101/ECON125

Spring 2004

Materials with "*" are more likely in the exam, but exam is not limited to those materials.

1. Basic Definitions: Chapter 2

You should be able to define:
- Pareto optimal
- Perfect competition
- Competitive equilibrium
- Main theory of welfare economics

2.   Welfare Economics and Positive/Negative Externality*:

Detailed text online: chapter 3, chapter 4, chapter 5, and chapter 6
Problem Sets: HW1
Discussion notes

(1) Social welfare=CS+PS+GR-TEC+TEB where GR is the net government revenue, TEC is the total externality cost, and TEB is the total externality benefit*

(2) Equilibrium conditions: should be able to solve mathematically and graphically the equilibrium for each of the followings:*
- Social optimum   (MSC=MSB, where MSC = MPC + MEC, MSB = MPB + MEB)
- Competitive   (MPC=MPB)
- Monopoly (MPC=MR)
- Monopsony   (MO=MB)
- Middleman   (MO=MR)

(3) Solve for welfare distribution: once you find the equilibrium, you shall be able to solve for the welfare distribution (CS, PS, GR, TEC, TEB, and DWL) both mathematically and graphically under each of the different market conditions*

(4) Solve for optimal tax and standard and find welfare distribution (using equilibrium conditions)*

(5) Coase Theorem (definition, graphical and mathematical solution and welfare)

(6) Choice of pollution taxes and standards*

(7) Weitzman model (intuition, graph, math, and main results)*

(8) Remedies for externality (Externality Tax/subsidy, Output-reduction Subsidy, Standards, pollution trading, etc.)*

(9) Elasticity Effects on Magnitude of Externalities

3. Public good*

Detailed text online: Chapter 7
Discussion notes
Problem Sets: HW2

(1) Definition of public good and pure public good (also congestion costs)*

(2) Homogeneous demand: solve for quantity provided, entry fee, and distribution of welfare under management by government, concessionaire, and monopolist.*

(3) Heterogeneous demand: solve for quantity provided, entry fee, and distribution of welfare under management by government, concessionaire, and monopolist.*

4. Technology adoption*

Detailed text online: chapter 8
Problem Sets: HW3
Discussion notes

(1) Mathematically compute whether individuals would adopt a new technology. Using this framework, analyze how policies (i.e. affecting output price, input prices, pollution taxes, fixed adoption costs, research and development, etc.) would affect adoption.

(2) S-curve: heterogeneity of individuals, or imitation

5. Natural resource economics*

Detailed text online: chapter 10, chapter 11, chapter 15
Problem sets: HW3

(1) Interest rate and NPV (net present value)
(2) Non-renewable resource vs. renewable resource
(3) Key Terms and Components of a generic model (mining cost, future cost, externality cost)
(4) Solve for optimal allocation under
         i. No regulation;
         ii. Open access;
         iii. Various regulations.
(5) Price dynamics (for nonrenewable resources)
(6) Fishery issues and Forestry issues (optimal rotation)
(7) Issues in nonrenewable resources