

# An Introduction to International Trade Theory

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This course will focus on the theory of international trade, with some reference to empirical evidence. I will not present a highly technical course, but aim for a balance between a comprehensive presentation of the breadth of existing topics and more formal approaches to central questions. It is my goal that students will come away from the course with the ability to successfully tackle professional journal articles with an understanding of the place and the importance of the topic in the larger scheme of things.

However, a minimum competence level of MA-level microeconomics is required for the course. You should not be in the course if you have not done well in MA level micro, PhD level preferred.

The course will be textbook-based. The text is a new book in preparation by myself and Professor Keith Maskus to be published by Wiley-Blackwell. The good news is that I will give you the draft manuscript for free. But please note the it is copyrighted, and no copying or emailing on of the manuscript is permitted. Please comply.

## Material and References

Markusen, James R. and Keith E. Maskus, 2010. *International Trade: Theory and Evidence*, New York: Wiley Blackwell.

Feenstra, *Advanced International Trade*, Princeton University Press, 2003. This is a graduate level book. It is primarily directed at the PhD level, but much is suitable for the MA students with strong microeconomics. It is an excellent source for surveys of empirical research.

Detailed class notes, prepared by myself, are available for my PhD course. These are available on my website:

<http://spot.colorado.edu/~markusen>

click on “teaching” on the left menu

look on the left under “PhD notes”

Class assessment will be by final exam and several problem sets. I may give different problem sets for MA and PhD students.

For details about my own interests and research, see <http://spot.colorado.edu/~markusen>

Course Outline: Organized by Topic into 12 Lectures. One lecture does not always correspond to one day (course presented over 12 weeks)

I will be going very fast through some basic material. *So it is very important that all, students, and MA students in particular are well prepared before a lecture. Read through the relevant material in Markusen, et.al.*

## **Part I: Tools of General-Equilibrium Analysis**

Lecture 1: Review of Production Theory

1. Production: Functions, Set, Frontier: Transformation Function
  
3. Production Frontier (2 good case)
  - (A) Position
    - Factor endowments
    - Real factor productivities (technology)
    - Scale economies
  - (B) Slope
    - Relative factor productivities
    - Relative endowments
    - Scale Economies
  - (C) Curvature
    - Factor intensity effects
    - Scale economies
  
4. Competitive Equilibrium
  
5. The first theorem of welfare economics and its implications

## Lecture 1: Review of Consumer Theory, General Equilibrium

1. Equilibrium for the single consumer  
Utility function  
Budget Constraint  
Equilibrium
2. Market Demand  
The aggregation problem  
Identical homothetic utility  
Quasi-homotheticity  
Positive, normative interpretations of aggregate indifference curves
3. Equilibrium in the closed economy  
Equilibrium as the solution to an optimization problem  
Equilibrium as the solution to a system of inequalities

## Lecture 1: Duality, Excess Demand and Offer Functions

1. The national product or revenue function
2. The expenditure function
3. Excess demand functions
4. Offer functions

## Lecture 2: Gains from Trade

1. The gains from trade theorem - free trade versus no trade (autarky)
2. Restricted/subsidized trade versus autarky
3. Free trade versus restricted trade
4. Failures of the gains from trade theorem  
"non-convexities"  
"non-tangencies"
5. Distribution of gains between countries  
Equilibrium prices relative to autarky prices
6. Distribution of gains between individuals within countries  
Identical endowments, different preferences  
Identical preferences, different endowments

## Part II: Bases for Trade

### The No-Trade Model

- (A) Identical production functions in all countries
- (B) Same relative factor endowments in all countries
- (C) Constant returns to scale
- (D) Identical, Homogeneous preferences in all countries
- (E) No Distortions (imperfect competition, externalities, taxes).

### Lecture 3: Ricardian Models - Technology as a basis for Trade

1. A one-factor model of technology differences
2. Comparative versus absolute advantage  
Existence of trading opportunities depends only on comparative Advantage.
3. Production frontier, closed-economy equilibrium
4. Comparative advantage and autarky price ratios  
Pattern of comparative advantage reflected in autarky prices
6. Excess demand and international equilibrium  
Constructing the excess demand curve  
Specialization
8. The distribution of gains between countries  
Big versus small countries  
More productive versus less productive countries
7. Real wage comparisons across countries  
The role of equilibrium prices  
The role of absolute advantage

### Lecture 3-4: Heckscher-Ohlin Theory

1. Basic assumptions
2. The production set  
Define factor intensities  
The Edgeworth Box

Strict convexity of the production set  
Slope

3. The Heckscher-Ohlin Theorem
4. The Factor-Price-Equalization Theorem
5. The Stolper-Samuelson Theorem
6. The Rybczynski Theorem
7. Policy Implications

Lecture 4: The Specific-Factors Model (Ronald Jones), Generalizations of Factor-Proportions Models

1. Production functions, convexity of the production set.
2. The direction of trade - modification of the Heckscher-Ohlin theorem.
3. Factor endowments and outputs- modification of the Rybczynski theorem.
4. Commodity prices and factor prices - modification of the FPE and Stolper-Samuelson theorems.

Lecture 5: Government Policies and Distortions as Determinants of Trade

1. Distinguishing among producer, consumer, and world prices.
2. Autarky equilibrium, where does tax revenue go?
3. Small economy facing fixed world prices: distortions as a basis for (bad) trade.
4. Two identical economies, except one has a distortion.
5. Gains-from-trade analysis: the expansion condition revisited.
6. Factor market distortions.

Lecture 5: External Economies of Scale

1. Firm and industry production functions
2. Non-tangency and non-convexity

3. Country size as a determinant of trade
4. Possible multiple equilibria and low-level traps
5. International external economies
6. A note on factor prices

#### Lecture 5-6: Oligopoly Models with Homogenous Goods

1. Trade between identical countries in a Cournot duopoly
2. The “linear” model: linear demand and constant marginal cost
3. Cournot duopoly in the linear model
4. A free-entry version of the Cournot linear model
5. Positive trade costs: the “reciprocal dumping” model with segmented markets
6. The “home-market effect”: per capital welfare difference in the presence of trade costs and country size differences
7. Notes on segmented versus integrated markets

#### Lecture 6-7: Monopolistic - Competition

1. Dixit-Stiglitz preferences - “love of variety”  
The basic Krugman model - variable markups  
Fixed markups (“large-group” monopolistic competition)
2. Differentiated intermediate inputs and the “division of labor”  
Ethier’s model  
Extensions - traded and non-traded intermediate inputs
3. Differentiated goods and the volume of trade - zero trade costs  
The Helpman-Krugman FPE analysis  
Intra-industry and inter-industry trade volumes  
Extensions - non-homothetic demand
4. Transport costs and home-market effects  
Differences in country size, real wages and Linder effects  
Two-sector models

Factor-price and agglomeration effects

5. Lancaster's "location" model - "ideal variety"

#### Lecture 7-8: Trade Cost, Demand

1. Trade costs
2. Different tastes between countries as a determinant of demand
3. Differences in per-capita income as a determinant of trade
4. The Linder hypothesis, product cycles, and extensions
5. The gravity equation, intra-industry trade indices

#### Lecture 9: Trade in Factors

1. A gains-from-trade theorem
2. The Jones-Coelho-Easton two-factor, one-good model.
3. The Heckscher-Ohlin Model: trade in goods and factors as substitutes  
Zero trade costs, specialization  
Positive trade costs
4. Possible different results in the three-good specific-factors model
5. Trade in goods and factors as complements  
Countries differ in technology  
Product market distortions  
Increasing returns.
6. Home market effects in models with scale economies and transport costs.

#### Lecture 10: Multinational Firms

1. Review of empirical evidence
2. Dunning's OLI, joint inputs, firm versus plant-level scale economies
3. A model with endogenous multinationals
4. Pattern of trade in goods and services

5. Motives for internalization
6. A model of internalization

## Part III: Trade Policy

### Lecture 11: Tariffs

1. Tariffs, prices and welfare in a small economy
2. Equivalence of an import tariff and export tax
3. Tariff = consumption tax + production subsidy
4. Export subsidies
5. Existing distortions, second best, “infant industry argument
6. Terms of trade and the optimal tariff
7. Tariffs and retaliation, trade wars
8. Effective protection, internal income redistribution

### Lecture 11: Quotas and Other Barriers

1. Methods of instituting a quota
  - auctions
  - domestic give-away
  - VER
  - red tape, DUPS
2. Comparison of methods
3. Non-equivalence of tariffs and quotas
  - distributional effects within countries and between countries
  - retaliation, Nash equilibria in tariffs versus quotas
  - foreign monopolist supplying the import good
  - domestic monopoly producer of the import-competing good.
  - economy is growing
  - fluctuations, “shocks”



## Lecture 12: Strategic Trade Policy

1. Definition: Trade policy with increasing returns and imperfect competition  
Domestic distortions, profit shifting
2. Cournot competition - production subsidy  
One firm in each country  
Firm numbers fixed, but  $> 1$   
Add domestic consumption  
Free entry  
Foreign ownership
3. Bertrand competition
5. Import protection as export promotion
6. Voluntary export restraints, facilitating collusion
7. Monopolistic competition
8. Complementarity of domestic and imported intermediate inputs
9. Segmented versus integrated markets

Extras

## Lecture 13: Preferential Trade Areas

1. Inherent difficulties of second-best problems
2. Traditional approach: trade creation and diversion
3. Problems with traditional approach
4. Kemp-Wan theorem

## Lecture 14: Political Economy

1. Basic postulates
2. Median-voter model
3. Participation costs, free riding, logrolling

4. Status-quo bias
5. Multi-issue bargaining and exchange of market access
6. Mayer's median voter model
7. Grossman-Helpman protection for sale

### Reading List

Below is the list of chapters in Feenstra and in Markusen et. al. I have also included "classic" articles for each topic, but I will not expect students to master these in such a short course.

#### Lecture 1:

Markusen and Maskus (MM), Chapters 2-5  
Feenstra, Chapter 1, 3  
Dixit and Norman, Chapters 1-3

#### Lecture 2:

Markusen, Melvin, Kaempfer, and Maskus, Chapter 5  
Feenstra, Chapter 6  
Corden, "The Normative Theory of International Trade", in Jones and Kenen.  
Dixit and Norman, Chapter 3, parts 2-4.

#### Lecture 3:

MM, Chapters 6, 7, 8  
Feenstra, Chapter 1  
Jones and Neary, "The Positive Theory of International Trade", in Jones and Kenen.  
Dornbusch, Fischer, and Samuelson, "Comparative Advantage, Trade, and Payments in a Ricardian Model with a Continuum of Goods", *American Economic Review*, December 1977.

#### Lecture 4:

MM, Chapters 8, 9  
Feenstra, Chapters 1-3.  
Dixit and Norman, Chapter 4.  
Jones, "The Structure of Simple General-Equilibrium Models," *Journal of Political Economy*, 1965.  
Jones, "A Three Factor Model in Trade, Theory and History", in Bhagwati et. al. (editors), *Trade, Balance of Payments and Growth*, North Holland, 1971.  
Mayer, "Short-Run and Long-Run Equilibrium for a Small Open Economy," *Journal of Political Economy*, 1974, 955-968.  
Ethier, "Higher Dimensional Trade Theory," in Jones and Kenen.

Lecture 5:

MM, Chapter 10, 11

Melvin, "Commodity Taxation as a Determinant of Trade," *Canadian Journal of Economics*, February 1970.

Brander and Krugman, "A Reciprocal Dumping Model of International Trade", in Grossman, Readings.

Markusen, "Trade and the Gains from Trade with Imperfect Competition," *Journal of International Economics*, 1981, 117-134, in Grossman, Readings.

Lecture 6:

MMKM, Chapter 11, 12.

Feenstra, Chapter 5.

Krugman, "Increasing Returns, Monopolistic Competition and International Trade," *Journal of International Economics*, 1979, 469-479. In Bhagwati, Readings.

Helpman, "International Trade in the Presence of Product Differentiation, Economies of Scale Monopolistic Competition: A Chamberlinian-Heckscher-Ohlin approach," *Journal of International Economics*, 1981, 304-340. In Grossman, Readings.

Ethier, "National and International Returns to Scale in the Modern Theory of International Trade", *American Economic Review*, 1982, 389-405. In Grossman, Readings.

Lecture 7:

MM, Chapter 12, 13.

Feenstra, Chapter 5.

Lecture 8:

MM, Chapter 13, 14

Linder, *An Essay on Trade and Transformation*, Almqvist and Wiksell, 1961.

Markusen, "Explaining the Volume of Trade: An Eclectic Approach", *American Economic Review*, December 1986.

Bergstrand, "The Heckscher-Ohlin Theorem, the Linder Hypothesis, and the Volume and Pattern of International Trade", *Economic Journal*, December 1990.

Vernon, "International Investment and International Trade in the Product Cycle," *Quarterly Journal of Economics*, May 1966.

Lecture 9:

MM Chapter 15, 16

Feenstra, Chapter 4.

Mundell, "International Trade and Factor Mobility," *American Economic Review* 1957, 321-335. In Bhagwati Readings.

Markusen, "Factor Movements and Commodity Trade as Complements," *Journal of International Economics*, 1983, 341-356, in Neary Readings.

Lecture 10:

MMKM, Chapter 16

Feenstra, Chapter 10

Markusen, MIT press book.  
Markusen and Venables, "The General Theory of Inter-Industry-, Intra-Industry-, and Multinational Trade", *Journal of International Economics* 52 (2000), 209-234.  
Markusen and Venables, "Multinational Firms and the New Trade Theory", *Journal of International Economics* 46 (1998), 183-204.  
Helpman, "A Simple Theory of International Trade with Multinational Corporations," *Journal of Political Economy*, 1984, 451-471.  
Markusen, "The Multinationals, Multi-Plant Economies, and the Gains from Trade", *Journal of International Economics*, 1984, 205-226. In Bhagwati Readings.  
Horstmann and Markusen, "Endogenous Market Structures in International Trade", *Journal of International Economics* 1992, 109-129, in Neary Readings.

Lecture 11:

MM, Chapter 18, 19  
Feenstra, Chapter 7  
Dixit and Norman, Chapters 4, 5.  
Corden, "The Normative Theory", in Jones and Kenen, Chapter 2.

Lecture 12:

MM, Chapter 19, 20.  
Feenstra, Chapter 8.  
Corden, "The Normative Theory", in Jones and Kenen, Chapter 2.  
Spencer and Brander, "International R&D Rivalry and Industrial Strategy," *Review of Economic Studies*, 1983, 707-722.  
Dixit, "International Trade Policy for Oligopolistic Industries," *Economic Journal Supplement*, 1984, 1-16.  
Eaton and Grossman, "Optimal Trade and Industrial Policy under Oligopoly", *Quarterly Journal of Economics*, 1985, 383-406. In Grossman, Readings.  
Harris, "Why Voluntary Export Restraints are Voluntary", *Canadian Journal of Economics*, 1985, 799-809.  
Horstmann and Markusen, "Up the Average Cost Curve: Inefficient Entry and the New Protectionism", *Journal of International Economics*, 1986, 225-248, in Neary Readings.

Added Topics if time permits:

Political economy

Preferential trade areas

## OTHER REFERENCES

Dixit and Norman, *Theory of International Trade*, Cambridge.

Bowen, Hollander, and Viaene, *Applied International Trade Analysis*, Michigan.

Bhagwati (ed.), *International Trade: Selected Readings*, MIT Press, second edition.

Grossman (ed.), *Imperfect Competition and International Trade*, MIT Press.

Jones and Kenen (ed), *Handbook of International Economics*, Volume I, North-Holland.

Helpman and Krugman, *Market Structure and Foreign Trade*, MIT Press.

Neary (ed), *International Library of Critical Writings in Economics: International Trade*, Edward Elgar.

Markusen, *Multinational Firms and the Theory of International Trade*, MIT Press, 2002.

Fujita, Krugman and Venables, *The Spatial Economy*, MIT Press 1999.

Choi and Harrigan, *Handbook of International Trade*, Blackwell, 2003.