

Course title: **International Trade, Environment and Multilateral Institutions (IE 526)**

Course type: *Optional*

Course instructor: **Aparna Sawhney**

Credits: 4

Lecture hours: **4 hours/week**

Pre-requisite courses: **Theory of International Trade (IE 407)**

Course Objective: To provide students the theoretical foundation of the relationship between international trade and environmental pollution and governance; and to understand empirical applications of the theoretical models.

Learning outcome: Students would be prepared for future research and policy analyses in the area of international trade and environmental economics.

Evaluation: Midterm 40%, Class presentations 20%, End-term 40%

Course Content: This course focuses exclusively on the relationship between international trade and environment, and the multilateral governing institutions of this interface. It begins by examining the underlying theories and empirics in the trade-environment literature, the use of environmental policy instruments for global environmental problems, trade-environment governance rules under the World Trade Organization, and finally, the current emphasis on trade in virtual carbon, climate-friendly goods and technology.

The different modules will include traditional trade theory with environmental dimensions; the use of first best environmental policy instruments and second-best trade instruments in such models; the competitiveness impact of environmental regulation on goods trade and factor movement; linked-negotiation models, games of trade and environment; trade in wastes, carbon-embodied in trade and trade in clean technology goods.

The basic readings for each module are outlined below. Other readings will be given in class:

I. Introduction

- Daly, Herman (1968) “On Economics as a Life Science”, *Journal of Political Economy*, 76: 392-406.
- Baumol, W. and W. Oates (1988) “Externalities: dimension, significant types, and optimal-pricing conditions”, chapter 3 in Baumol, William and Wallace Oates (1988) *The Theory of Environmental Policy*, Cambridge University Press.
- Stevens, Candice (1993) “The Environmental Effects of Trade” *The World Economy*, 16(4): 439-451.
- WTO (2022) World Trade Report 2022: *Climate change and international trade*, World Trade Organization.

(Readings on environmental provisions in multilateral trade, environmental trade disputes to be assigned in class)

II. Theory and Empirics of International Trade-Environment Interface

II.1 Environmental Policy and Comparative Advantage in International Trade

- Pethig, Rüdiger (1976) "Pollution, Welfare, and Environmental Policy in the Theory of Comparative Advantage", *Journal of Environmental Economics and Management*, 2: 160-169.
- Baumol, William and Wallace Oates (1988) "International Environmental Issues" (chapter 16) in Baumol and Oates *The Theory of Environmental Policy*, Cambridge University Press.
- Copeland, Brian and M. Scott Taylor (1994) "North-South Trade and the Environment", *Quarterly Journal of Economics*, 109(3): 755-787.
- Ulph, Alistair (1992) "The Choice of Environmental Policy Instruments and Strategic International Trade" Chapter 5 in Rudiger Pethig ed. *Conflicts and Cooperation in Managing Environmental Resources*, Springer Verlag: 111-129.

II.2 Natural Resource Management and International Trade

- Kemp, Murray C. and Ngo Van Long (1984) "The Role of Natural Resources in Trade Models" in R. W. Jones & P. B. Kenen (ed.) *Handbook of International Trade*, Volume 1(1), Elsevier.
- Copeland, Brian (2005) "Policy Endogeneity and the Effects of Trade on the Environment", *Agricultural and Resource Economics Review*, Volume 34(1): 1-15.

II.3 Empirics on Environmental Stringency and International Trade

- Cole, Matthew and Robert J. R. Elliott (2003) "Do Environmental Regulations Influence Trade Patterns: Testing Old and New Trade Theories", *The World Economy*: 1163-86.
- Xing, Yuqing and Charles D. Kolstad (2002) "Do Lax Environmental Regulations Attract Foreign Investment?" *Environmental and Resource Economics*, 21: 1-22.
- Manderson, Edward and Richard Knellar (2012) "Environmental Regulations, Outward FDI and Heterogeneous Firms: Are Countries Used as Pollution Havens?" *Environmental and Resource Economics* 51: 317-352.
- Brunel, Claire (2017) "Pollution Offshoring and Emission Reductions in EU and US Manufacturing", *Environmental and Resource Economics* 68: 621-641.

II.4 International Trade in Waste and Multilateral Environmental Agreements

- Copeland, Brian R. (1991) "International Trade in Waste Products in the Presence of Illegal Disposal", *Journal of Environmental Economics and Management*, Volume 20: 143-162.
- Johnstone, Nick (1998) "The implications of the Basel Convention for developing countries: the case of trade in non-ferrous metal-bearing waste", *Resources, conservation and recycling*, Volume 23: 1-28.
- Baggs, Jen (2009) "International Trade in Hazardous Waste", *Review of International Economics*, Volume 17(1): 1-16.
- Kellenberg, Derek (2012) "Trading waste", *Journal of Environmental Economics and Management*, Volume 64: 68-87.

(Readings on Porter Hypothesis to be assigned in class)

III. Multilateral Trade and Environmental Regime

III.1 Trade in Environmental Goods and Renewable Energy Technology

- Constantini, Valeria and Crespi Francesco (2008) “Environmental regulation and export dynamics of energy technologies”, *Ecological Economics*, Volume 66: 447-460.
- Sawhney, Aparna and Matthew E. Kahn (2012) “Understanding cross-national trends in high-tech renewable power equipment exports to the United States”, *Energy Policy* (46): 308-318.
- Groba, Felix and Jing Cao (2015) “Chinese Renewable Energy Technology Exports: The Role of Policy, Innovation and Markets”, *Environmental and Resource Economics*, 60: 243-283.
- Kuik, Onno, Federic Branger and Philippe Quirion (2019) “Competitive advantage in the renewable energy industry: Evidence from a gravity model”, *Renewable Energy* 131: 472-481.
- Ogura, Yasuhiro (2020) “Policy as a “porter” of RE components export or import? Evidence from PV/wind energy in OECD and BRICS”, *Energy Economics*, 86: 104630.

III.2 Trade, Embedded Carbon Emissions and CBAM

- Barrows, Geoffrey and Helene Ollivier (2021) “Foreign demand, developing country exports, and CO₂ emissions: Firm-level evidence from India”, *Journal of Development Economics*, 149 Issue C: 102587.
- Azim, Rumi and Aparna Sawhney (2025) “Imported inputs reduce carbon intensity: Evidence from Indian manufacturing firms”, *Economic Modelling*, 150: 107134.
- Sakai, Marco and John Barrett (2016) “Border carbon adjustments: Addressing emissions embodied in trade”, *Energy Policy*, 92: 102-110
- Perdana, Sigit, and Marc Vielle (2022) “Making the EU Carbon Border Adjustment Mechanism acceptable and climate friendly for least developed countries”, *Energy Policy*, 170: 113245.

Recommended books

Baumol, William and Wallace Oates (1988) *The Theory of Environmental Policy*, Cambridge University Press.

Copeland, Brian R. and M. Scott Taylor (2003) *Trade and the Environment: Theory and Evidence*, Princeton University Press.

Karl-Goran Maler and Jeffrey R. Vincent ed. (2005) *Handbook of Environmental Economics*, Volume 3: Economywide and International Environmental Issues, Elsevier.