

# Sustainable Development and Environment

**Semester:** Spring semester 2022

**Root Number:** 455489

**ECTS:** 3

**Lecturers:** Patrick Tomberger and Hugo Rojas-Romagosa. World Bank staff will be invited to present on one session.

**Dates:** March 2<sup>nd</sup>, 4<sup>th</sup>, 9<sup>th</sup> and 16<sup>th</sup>; April 6<sup>th</sup>, 13<sup>th</sup>, 27<sup>th</sup>; May 4<sup>th</sup>. Session for student presentations: May 11<sup>th</sup>.

**Audience:**

- Master of Advanced Studies of International Law and Economics (MILE) Students – Compulsory
- Joint LL.M. / Diploma of Advanced Studies Trade and Investment Law (TRAIL+) Students - World Trade Institute / Faculty of Law, Unibe – Optional
- This course is not open to MILE a la Carte

**Course description:**

In this course the students will receive a general introduction into development economics and environmental sustainability. The first part of the course will focus on specific topics in environmental economics and its linkages with economic development. The second part will focus on economic development and growth theories and link them to contemporary issues in development.

The topics we are going to cover include:

## 1. Economic Development

- Cross-country income differences
- Economic growth models
- Human capital and technology
- Growth and globalization

## 2. Development and environmental sustainability

- Foundations in environmental economics
- Climate change and responsibility
- GHG emissions embodied in trade
- Border tax adjustments

Grading will be based on presentations and a seminar paper prepared by groups of students related to one of the topics discussed in the lectures. The presentations will take place at a special session to be conducted after the final lecture took place. Active participation in the course is required. Thus, the students are required to prepare the material discussed in the lectures in advance. For this the required literature as well as the slides discussed in the lectures will be made available in ILIAS.

## Lecturers

### Patrick Tomberger

Patrick Tomberger is a postdoc researcher at the World Trade Institute located in Bern, Switzerland. Before he joined the WTI, he worked as a predoc researcher at the University of Linz from 2010 to 2015 where he obtained a PhD in Economics. He also holds Master degrees in Political Economy and Political Science from the University of Innsbruck. He also worked as consultant for the World Bank and has been part of projects funded by the European Union and the Swiss National Science Foundation. His main research interests are international trade, global value chains, input-output analysis and environmental economics. In those fields he published in international peer-reviewed journals such as Applied Economics, Empirical Economics, The World Economy, Ecological Economics, Economics Letter and Environmental and Resource Economics.

### Hugo Rojas-Romagosa

Hugo Rojas-Romagosa is a research economist at the World Bank. He worked as senior

fellow researcher at the World Trade Institute in Bern (2018-2020), as a senior researcher at the CPB Netherlands Bureau for Economic Policy analysis (2006-2018), and previously at the Central Bank of Costa Rica. He has been part of several EU-funded projects and has done consultancy work for many international and national organizations, including the World Bank, the Inter-American Development Bank, UNCTAD, UNDP, ECLAC, OECD, the Vienna Institute for International Economic Studies and INCAE Business School (Costa Rica). More recently he has done trade-policy consultancy work for the British and Swiss governments. He obtained his PhD in economics from the Erasmus University Rotterdam and holds a Master of Philosophy from the Tinbergen Institute in The Netherlands. His research interests include trade theory and trade policy, quantitative trade analysis (CGE modelling and gravity estimations), FDI and trade in services, trade in value-added and global supply chains, globalization and labour markets, income distribution, human capital, international migration and economic development.

### **Learning objectives**

Over the duration of the course, students will be introduced to and gain an understanding of a range of concepts, theories, and issues in development economics, environmental economics and trade policy, which they will be able to critically analyze and discuss.

### **Exam and Grades:**

30% student presentation  
60% term paper  
10% participation in class

## **Course Overview**

Class	Date	Day	Time	Hours	Topic
1	02.03.	Wednesday	10:00-13:00	3	Hugo Rojas-Romagosa
2	04.03.	Friday	10:00-12:00	2	Hugo Rojas-Romagosa
3	09.03.	Wednesday	10:00-12:00	2	Hugo Rojas-Romagosa
4	16.03.	Wednesday	14:00-17:00	3	Hugo Rojas-Romagosa / WB staff
5	06.04.	Wednesday	14:00-16:00	2	Patrick Tomberger
6	13.04.	Wednesday	14:00-16:00	2	Patrick Tomberger
7	27.04.	Wednesday	14:00-17:00	3	Patrick Tomberger
8	04.05.	Wednesday	14:00-17:00	3	Patrick Tomberger
9	11.05.	Wednesday	14:00-16:00	2	Student Presentations

## Session 1

### Subject

History and concepts of economic development

### Topics

- What is economic development?
- Social and economic indicators of development
- Cross-country income differences
- Sources of global inequalities

### Compulsory Reading Material

- Meier, G.M. and J.E. Rauch (2005). *Leading Issues in Economic Development*, Eight Edition, Oxford University Press, Chapters 1 & 2.
- Acemoglu, D. (2009). *Introduction to Modern Economic Growth*. Princeton University Press. Chapter 1.

### Optional Reading Material

- Diamond, J. (2002). Evolution, consequences and future of plant and animal domestication. *Nature*, 418: 700-707.
- Acemoglu, D., S. Johnson and J. Robinson (2001). "The Colonial Origins of Comparative Development: An Empirical Investigation", *American Economic Review*, 91(5): 1369-1401.
- MacLeod, W.B. (2013). "A Review of "Why Nations Fail" by D. Acemoglu and J. Robinson and "Pillars of Prosperity" by T. Besley and T. Persson," *Journal of Economic Literature*, 51(1): 116-143.
- Sokoloff, K. and S. Engerman (2000). "History Lessons: Institutions, Factors Endowments, and Paths of Development in the New World", *Journal of Economic Perspectives* 14(3), 217-232.

## Session 2

### Subject

Economic growth

### Topics

- Working with growth rates
- Production functions
- Neoclassical (Solow) growth models
- Endogenous growth models

### Compulsory Reading Material

- Weil, D. (2013). Economic Growth. Person Education, Chapter 3.
- Todaro, M.P. and S.C. Smith (2015). Economic Development, Pearson Education, Appendix 3.3. pp. 159-163.

### Optional Reading Material

- Romer, P.M. (1994) The Origins of Endogenous Growth. The Journal of Economic Perspectives, Vol. 8, No. 1, pp. 3-22.
- Acemoglu, D. (2009). Introduction to Modern Economic Growth. Princeton University Press. Chapter 2.

## Session 3

### Subject

Growth determinants and poverty

### Topics

- Technical progress and productivity differences across countries
- Human capital
- Income distribution and political economy
- Poverty

### Compulsory Reading Material

- Weil, D. (2013). *Economic Growth*. Person Education, Chapters 7 & 8.
- Meier, G.M. and J.E. Rauch (2005). *Leading Issues in Economic Development*, Eight Edition, Oxford University Press, Chapters 7,8 & 9.
- World Bank (2001). *World Development Report 2000-2001: Attacking Poverty*. The World Bank Group, Washington D.C.

### Optional Reading Material

- Hanushek, E. and L. Woessman (2008). "The Role of Cognitive Skills in Economic Development," *Journal of Economic Literature*.
- Rosenzweig, M. (2010). "Microeconomic Approaches to Development: Schooling, Learning and Growth," *Journal of Economic Perspectives* 24(3): 81-96.
- World Bank (2018). *World Development Report 2018: Learning to Realize Education's Promise*. The World Bank Group, Washington D.C.
- World Bank (2006). *World Development Report 2006: Equity and Development*. The World Bank Group, Washington D.C.

## Session 4

### Subject

Growth in the open economy

### Topics

- Globalization: trade, FDI, GVCs and debt
- Presentation by WB Staff

### Compulsory Reading Material

- Meier, G.M. and J.E. Rauch (2005). *Leading Issues in Economic Development*, Eight Edition, Oxford University Press, Chapters 4.
- World Bank (2001). *World Development Report 2000-2001: Attacking Poverty*. The World Bank Group, Washington D.C.

### Optional Reading Material

- Feenstra, R. (2018) "Alternative Sources of the Gains from International Trade: Variety, Creative Destruction, and Markups," *Journal of Economic Perspectives* 32(2): 25-46.
- Arslanalp S., and P.B. Henry (2006). "Policy Watch: Debt Relief," *Journal of Economic Perspectives*, 20(1): 207-220.



## Session 5

### Subject

A primer in environmental economics 1 – public goods, externalities, and discounting.

### Topics

- The link of environmental and development economics
- Public goods
- Externalities
- Discounting

### Compulsory Reading Material

- De Janvry A. and E. Sadoulet (2016): Development Economics – Theory and Practice. Routledge. Chapter 15.
- Rosen, S. and T. Gayer (2010): Public Finance. McGraw Hill Education. Chapter 4.

### Optional Reading Material

- Pindyck, R. and D. Rubinfeld (2018): Microeconomics. 9th Edition. Pearson. Chapter 18.
- Kolstad, C. (2011): Environmental Economics. 2nd Edition. Oxford University Press.
- Jayachandran, S. (2009): Air Quality and Early-Life Mortality: Evidence from Indonesia's Wildfires, *The Journal of Human Resources*, 44. 916–954.
- Deryugina, T.; Heutel, G.; Miller, N.; Molitor, D. and J. Reif (2019): The Mortality and Medical Costs of Air Pollution: Evidence from Changes in Wind Direction, *The American Economic Review*, 109. 4178 – 4219.

## Session 6

### Subject

A primer in environmental economics 2 – policy measures.

### Topics

- Private responses
- Pigouvian tax
- Emission fees
- Cap and trade systems

### Compulsory Reading Material

- De Janvry A. and E. Sadoulet (2016): Development Economics – Theory and Practice. Routledge. Chapter 15.
- Rosen, S. and T. Gayer (2010): Public Finance. McGraw Hill Education. Chapter 5.

### Optional Reading Material

- Kolstad, C. (2011): Environmental Economics. 2nd Edition. Oxford University Press.
- Jayachandran, S. (2009): Air Quality and Early-Life Mortality: Evidence from Indonesia's Wildfires, *The Journal of Human Resources*, 44. 916–954.
- Schmalensee R. and R. Stavins (2019): Policy Evolution under the Clean Air Act, *Journal of Economic Perspectives*. 33. 27 – 50.

## Session 7

### Subject

The Economics of Climate Change.

### Topics

- GHG emissions as global externality
- The bathtub analogy – risks and targets
- The costs of abatement
- The social costs of carbon
- Policy instruments and international economic policy

### Compulsory Reading Material

- Stern, N. (2008): The Economics of Climate Change, *The American Economic Review*, 98. 1 – 37.
- Gillingham, K. and J.H. Stock (2018): The Cost of Reducing Greenhouse Gas Emissions, *Journal of Economic Perspectives*, 32. 53 – 72.

### Optional Reading Material

- Llavador, H.; Roemer, J.e. and J. Silvestre (2015): Sustainability for a Warming Planet. Harvard University Press. Chapter 4.
- Nordhaus, W. (2017): Revisiting the social cost of carbon, *Proceedings of the National Academy of Sciences*, 114. 1518 – 1523.
- Stern, N. (2007): *The Economics of Climate Change: The Stern Review*. Cambridge University Press.
- Wagner, G. and M.L. Weitzman (2015): *Climate Shock – The Economic Consequences of a Warming Planet*. Princeton University Press.

## Session 8

### Subject

GHG emissions embodied in trade; tensions between the WTO framework and climate change policy.

### Topics

- Trade and GHG footprints
- The pollution haven hypothesis
- Border tax adjustments

### Compulsory Reading Material

- Fernández-Amador, O.; Francois, J.F. and P. Tomberger (2016): Carbon dioxide emissions and international trade at the turn of the millenium, *Ecological Economics*. 125. 14 – 26.
- Fernández-Amador, O.; Francois, J.F.; Oberdabernig, D.A. and P. Tomberger (2016): The methane footprint of nations: Stylized facts from a global panel dataset. *Ecological Economics* 170, 106528
- Pauwelyn, J. (2013): Carbon leakage measures and border tax adjustments under WTO law, in: Van Calster G. and Prévost, D. (eds.): *Research Handbook on Environment, Health and the WTO*. Research Handbooks on the WTO series. Edward Elgar Publishing.

### Optional Reading Material

- Aichele, R. and G. Felbermayr (2015): Kyoto and Carbon Leakage: An empirical analysis of the carbon content of bilateral trade. *The Review of Economics and Statistics*, 97. 104 – 115.
- Fernández-Amador, O.; Francois, J.F.; Oberdabernig, D.A. and P. Tomberger (2017): Carbon dioxide emissions and economic growth: An assessment based on production and consumption emission inventories. *Ecological Economics* 135, 269 – 279.
- Fernández-Amador, O.; Francois, J.F.; Oberdabernig, D.A. and P. Tomberger (2018): Empirical estimates of the methane income elasticity. *Economics Letters*, 171, 137–139.
- Fernández-Amador, O.; Francois, J.F.; Oberdabernig, D.A. and P. Tomberger (2018): Testing for convergence in carbon dioxide emissions using a bayesian robust structural model. *Environmental and Resource Economics*, 73, 1265 – 1286.
- Fernández-Amador, O.; Francois, J.F.; Oberdabernig, D.A. and P. Tomberger (2018): Economic growth, sectoral structures, and environmental methane footprints. *Applied Economics*, 52, 1460–1475.

- Weber, R.H. (2015): Border tax adjustment – legal perspective. Climatic Change. 133. 407 – 417.