Environmental Economics and Policies

Instructor: Dr. Elías Cisneros; **Course meets:** TBA; **Office hours:** TBA

Introduction:
One of the primary challenges for policymakers, development practitioners, donors, and non-governmental organizations (NGOs) is understanding the characteristics of public environmental goods, and how to regulate markets that produce environmental damages. The objective of this course is to provide students with a set of theoretical and practical skills to analyze environmental issues and policy solutions. The course will introduce students to a variety of policy tools to evaluate the cost and benefits of environmental regulations, as well as efficiency and targeting aspects of policy design. Examples will be drawn from various sectors, including energy, agriculture, health, and governance. Students will not only learn how to critically analyze environmental policies but also use these skills to conduct their own evaluation of existing environmental projects.

Course Objectives:
By the end of this course, a student should be able to:

- Understand the environmental public goods and environmental externalities
- Understand policies as a means to solve market imperfections
- Understand the costs and benefits of environmental regulations
  Critically evaluate real-world environmental policy designs

Topics:
(1) Public goods; (2) Common pool resources and institutions; (3) Theoretically optimal policy instruments (Coase, Pigou); (4) Pragmatic policy instruments (environmental liability, command and control approaches, taxes, subsidies, emission trading); (5) Asymmetric information and incentive compatible instruments; (6) Eco-tax and double dividend

Pre-requisites:
Successful completion of an Intermediate microeconomics course is required.

Methods of instruction:
Concepts will be presented in class via lectures and case studies, which will also serve as the basis for class discussion and small group activities. Lectures will present key topics and summaries of the readings and will be posted on Canvas in the morning before class. Case studies will highlight research from the United States, Europe, and the global south. Weekly assignments will deepen the understanding of theoretical concepts and train the critical assessment abilities of students.

Requirements and grading:
There will be twelve problem sets and two exams. Grades will be calculated based upon the following weights: Class participation (10%), problem sets (30%), and exams (60%).

Main texts and reading materials:
The main literature is marked with an asterisk (*). All other literature sources are for further reading.

- *Pearman, R., May., Common, M., Maddison, D., and J. McGilvray. 2003. *Natural resources and Environmental Economics*, 4th ed. Pearson Education Limited, Essex, England. Chapter 5.
- *Endres, A., 2011. *Environmental Economics*: Theory and Policy. Cambridge University Press, New York. Part I.
- Kolstad, Charles. *Environmental Economics.* 2nd ed. Oxford University Press, 2010. ISBN: 9780199732647.

Course outline and exercises

Lectures 1-2: Welfare criteria, externalities and public goods

- *Pearman et al. (2003), Chapter 5.
- *Endres (2011) Part I.
- *Varian, 2010: Chapters: Exchange, Externalities, Public goods

Exercise 1: Welfare criteria and external effects
Exercise 2: Optimal provision of private and public goods

Lectures 3-4: Political Target Setting

- *Pearman et al. (2003), Chapter 6.
- *Joskow, P, L., and R. Schmalensee. 1998. The Political Economy of Market-Based Environmental Policy: The U. S. Acid Rain Program. Journal of Law and Economics, 41(1) pp. 37-83
- Napolitano, S.; Schreifels, J.; Stevens, G.; Witt, M.; LaCount, M.; Forte, R. & Smith, K., The US acid rain program: key insights from the design, operation, and assessment of a cap-and-trade program, The Electricity Journal, Elsevier, 2007, 20, 47-58
- Rosen, H.S., 2005. Public Finance, 7th ed. McGraw-Hill, New York. Chapter 6.

Exercise 3: Pollution control-target setting
Exercise 4: Public choice in environmental policy: The US Acid Rain Program (ARP)

Lectures 5-6: Optimal internalization policies (Pigou, Coase, PES, AEM)

- *Latacz-Lohmann, U.L., and Hamsvoort. C., 1997. Auctioning Conservation Contracts: A Theoretical Analysis and an Application. American Journal of Agricultural Economics,79 (2) pp. 407-18
- *Schilizzi, S., Latacz-Lohmann, U., and U. Latacs-Lohmann. 2007. Assessing the Performance of Conservation Auctions: An Experimental Study. Land Economics, 83 (4) pp. 497-515.
- Michael A. Arnold, Joshua M. Duke and Kent D. Messer. (2013): Adverse Selection in Reverse Auctions for Ecosystem Services, Land Economics, 89 (3), 387-412.
- Brown, L. K.; Troutt, E.; Edwards, C.; Gray, B. & Hu, W. A uniform price auction for conservation easements in the Canadian prairies, Environmental and Resource Economics, Springer, 2011, 50, 49-60

Exercise 5: Pigouvian taxes
Exercise 6: Coase bargaining

Lecture 7: Payments for environmental Services

- *Wunder, S., 2007. The Efficiency of Payments for environmental Services in Tropical Conservation. Conservation Biology, 21 (1).
- *Wunder, S. Payments for environmental services: Some nuts and bolts Center for International Forestry Research, Center for International Forestry Research, CIFOR Jakarta, 2005
- *Wunder, S. & Albán, M. Decentralized payments for environmental services: The cases of Pimampiro and PROFAFOR\ in Ecuador
  Ecological Economics, 2008, 65, 685 - 698
- *Arriagada, R. A.; Ferraro, P. J.; Sills, E. O.; Pattanayak, S. K. & Cordero-Sancho, S. Do payments for environmental services affect forest cover? A farm-level evaluation from Costa Rica Land Economics, 2012, 88, 382-399
- Börner, J.; Wunder, S.; Reimer, F.; Bakkegaard, K. R.; Viana, V.; Tezza, J.; Pinto, T.; Lima, L. & Marostica, S. Promoting forest stewardship in the Bolsa Floresta programme: Local livelihood strategies and preliminary impacts CIFOR, Fundação Amazonas Sustentável (FAS) and Zentrum für Entwicklungsforschung (ZEF), Rio de Janeiro, Brazil, 2013, 70

- Persson, U. M. & Alpízar, F., Conditional Cash Transfers and Payments for Environmental Services - A Conceptual Framework for Explaining and Judging Differences in Outcomes, World Development, 2013, 43, 124 – 137

Exercise 7: Payments for Environmental Services

Lecture 8: Agri-environmental Measures

- *Uthes, S., and B. Matzdorf. 2013. Studies on Agri-environmental Measures: A Survey of the Literature. Environmental Management, 51:251–266
- Dobbs, T. L. & Pretty, J. N., Agri-environmental stewardship schemes and "multifunctionality", Applied economic perspectives and policy, Oxford University Press, 2004, 26, 220-237
- Kroeger, T. & Casey, F., An assessment of market-based approaches to providing ecosystem services on agricultural lands, Ecological Economics, Elsevier, 2007, 64, 321-332

Lectures 9-12: Pragmatic policy instruments

- *Pearman et al. (2003), Chapter 7, 8.
- *Endres (2011) Part III.
- Meran, G. & Wittmann, N., Green, brown, and now white certificates: Are three one too many? A micro-model of market interaction, Environmental and Resource Economics, Springer, 2012, 53, 507-532
- Hoffman, W. C., Germany's new environmental liability act: Strict Liability for facilities causing pollution, Netherlands International Law Review, Cambridge Univ Press, 1991, 38, 27-41
- Prosperity, S., Ontario's Feed-in Tariff for Renewable Energy: Lessons from Europe, Sustainable Prosperity-University of Ottawa. Retrieved from http://sustainableprosperity. Ca/article292, 2010

Exercise 8: Cost efficiency
Exercise 9: Environmental liability law
Exercise 10: Emission and energy trading
Exercise 11: Env. Instrument assessment

Lecture 13 Eco-taxes

- *Jaeger, W. K., The welfare effects of environmental taxation, Environmental and Resource Economics, Springer, 2011, 49, 101-119

Exercise 12: Eco taxes