

Professor John Wargo

*“The Rise of International Environmental Risks: Corporate and Government Strategies”  
August 2-11, 2022*

## **Course Syllabus**

This graduate course will examine global food challenges that affect environmental quality and human health. A wide diversity of laws and regulations apply to food: air and water quality, biotechnology, pharmaceuticals, pesticides, plastics, energy, carbon pricing and exchanges, emission limits, pollution trading rights, land use, tariffs, subsidies, taxes, territorial and geographic designations, and certification.

We will critically examine corporate political strategies, differing legal standards among nations, trade barriers, changing consumer preferences, mergers & acquisitions, public subsidies, vertical ownership of value chains, advertising trends, and organic certification standards. Comparisons will be made among Swiss, EU, and US laws and regulations where possible.

You will learn to evaluate the effectiveness of environmental laws and policies that have been adopted to address a diversity of challenges the world faces.

1. Transboundary Environmental Risk & Law: Lessons from Nuclear Technologies
2. Food, Agriculture & Technology: Cost-Benefit vs Risk-Only Decision Criteria
3. Trade & Environmental Risks: International Law vs NGO Certification: Palm Case
4. Plastics, Wastes, & Contamination: Pathways toward a Circular Economy
5. Biotechnology, Oligopoly, & Environmental Risk Management
6. Certification of Food Quality: Organic Standards
7. Air Quality and Planetary Health: Control Strategies to Protect Health, Climate, Economy
8. Diet, Energy, & Climate: Strategies to Improve Health and Climate Stability

For each of these cases, students will be challenged to consider the following:

1. Laws, Regulations, and Policies: Purposes, Evaluation Criteria, Effectiveness Assessment
2. Economic Valuation of Benefits & Externalities
3. Disparities: Who Benefits, Who is Harmed?
4. Scientific Evaluation of Environmental & Health Risks
5. Ethical Reasoning Relevant to Decision-Making
6. Private Sector Initiatives to Reduce Negative Environmental Effects

## **Grade Assessment:**

- 20% Participation in Discussions
- 40% Essay 1500 words: Due 12 August, 15:00
- 40% Take Home Exam: Tentative Due Date: 19 August, 15:00

**Readings & Questions: All readings will be posted on a Google Drive:**

- Only the first 3 readings for each day are required, others are optional.
- All are available at no cost.
- *Please complete the readings before the course begins!*

**Session 1: Course Overview: Environmental Law: Risk and Regulation: Nuclear Technologies Case**

**A. Readings**

1. [Wargo. The Legacy of Nuclear Testing. Green Intelligence. Yale Press. Ch 1-4.](#)
2. [World Economic Forum: Global Risks. 2021.](#) Read Summary and Review Charts.
3. [World Economic Forum: Global Risks. 2022.](#) Read Summary and Review Charts

**Session 2: Agro-Chemical Regulation: Risk Assessment and Management Strategies**

**A. Readings:**

1. [Wargo. 2010. Green Intelligence: What is Acceptable Risk.](#)
2. [Pest Global Trade 2015.pdf](#)
3. [Wargo. 2010. Recommendations. Green Intelligence.](#)

**B. Discussion Questions**

1. How do pesticide regulations vary among nations and when do these differences become trade barriers?
2. What are the primary benefits of agro-chemical use?
3. What are the dangers of pesticides? How and why do they vary in the world?
4. What types of regulations are commonly adopted by nations to manage pesticide risks?
5. When products are banned in one country, should they be banned in others, or globally?
6. What population groups are more susceptible to health loss from pesticides, and why?
7. How can mergers and acquisitions in the chemical and biotechnology sectors affect environmental quality?

**Session 3: Risk, Regulation, and Certification: Palm Oil:**

**A. Readings**

1. [Cramb & McCarthy. 2016. Introduction. The Palm Oil Complex. NUS Press.](#)
2. [Pye. 2016. Deconstructing the Roundtable on Sustainable Palm Oil. Ibid.](#)
3. [Principles & Criteria. Palm Oil. 2018. Roundtable for Sustainable Palm Oil. Zurich.](#)

## **B. Discussion Questions**

1. Why are the externalities from palm oil production so difficult to regulate?
2. Why does palm oil now dominate world plant oil production?
3. Why has the production of palm oil grown dramatically since 2000?
4. What are the environmental and health consequences of oil production and consumption?
5. What laws and corporate policies influence the production of palm oil? How effective have they been in protecting biodiversity, GHG emissions, air quality, labor, and human health?
6. What are the social and economic consequences?
7. Certification programs (RSPO, FIBL, MSC, FSC, etc.) attempt to identify higher quality and less damaging foods. Is it possible to trace the supply chain of palm oil from field to table, or your vehicle fuel?
8. The Roundtable on Sustainable Palm Oil (RSPO) is a private certification program specifically applying to the palm oil sector. Its purpose is to encourage investors, producers, and consumers to reduce social and environmental damages. What are the strengths and limitations of certification programs such as RSPO?

## **Session 4: Plastics: Energy, Health, & Environment**

### **A. Readings:**

1. [Production, Use, Fate of All Plastics Ever Made. Geyer et al. 2017. Science Advances.](#)
2. [Groh et al. 2021. Plastics food contact chemicals.](#)
3. [MacArthur Foundation. 2019. New Plastics Economy.](#)

### **Not Required**

- A. [Quiet Revolution in Plastics, Green Intelligence. Wargo. 2010. Yale Press.](#)
- B. [Yang et al. Plastics Leach Estrogenic Chemicals. Env Health Perspectives.](#)
- C. [Geueke et al. 2018. Food Contact Substances of Very High Concern.](#)

### **B. Discussion Questions**

1. What are the benefits and risks of plastics in the global food sector?
2. What types of plastic are used in the food sector, and what are their purposes?
3. What energy savings occur due to plastic food packaging?

4. What environmental and health damages do plastics cause?
5. How are plastics in the food sector regulated? What legal and economic policies could reduce the negative effects of plastics, while retaining their benefits?

### *Session 5: Genetically Modified Foods & Water Quality Regulation*

#### **A. Session Readings**

1. [Clapp. Mergers and Acquisitions in the Global Food Sector](#)
2. Seed Money. Chapters 12 & 13.
3. [Glyphosate Residues in Swiss Foods](#)
4. [Swiss Supermarkets Stop Sales of Glyphosate. 2019. Sustainable Pulse.](#)

#### *Readings Not Required*

1. Savage. Forbes. Nobel Laureates: GMO's Benefits. 2016.
2. Benbrook. Weeds. 2012.pdf
3. Where is Glyphosate Banned?

#### **B. Discussion Questions**

1. Where have GM seed-chemical technologies been adopted, and for which crops?
2. How have GM plants affected water quality?
3. How concentrated is the GM seed-chemical industry and why?
4. What are the benefits of genetically modified plants on food production?
5. What are the environmental and health risks?
6. What explains the national variation in regulation of GMO's?
7. What are the possible regulatory policies to control GMO risks?
8. Why has labeling of GMO's become a popular policy in the EU but not the US?
9. Why have food firms in the US begun to label products with GMO's voluntarily?
10. Is it possible to segregate GM products from conventional ingredients?
11. What are the strengths and limitations of labeling as a policy to manage risk?

## Session 6: Organic Certification: Alternative Institutional Designs

### A. Session Readings:

1. [Organic Agric FIBL 2020.pdf](#) Pages 20-31, Browse the Rest.
2. [US Organic Standards.pdf](#). Read table of contents and quickly skim.
3. [Howard Concentration Power Organic.pdf](#)
4. [Swiss Certification Bodies.pdf](#)
5. Importing Organic Products from Switzerland.  
<https://www.ams.usda.gov/sites/default/files/media/importing%20organic%20products%20from%20switz.pdf>
6. Exporting Organic Products to Switzerland.  
<https://www.ams.usda.gov/sites/default/files/media/ExportingOrganicProductstoSwitzerland.pdf>
7. [EU Organic Food Trends. 2019. Foods.](#)

### B. Discussion Questions:

1. What institutional forms exist to certify food and agriculture (government, corporate, NGO, etc.)?
2. What are the primary purposes of EU, US, and Swiss organic food standards?
3. How does regulation differ from “certification”?
4. What criteria should use to judge the effectiveness of certification standards
5. What economic benefits are associated with organic food?
6. Why do US and European cultural attitudes toward responsible food differ so much?
7. Why are the largest food processing companies buying most of the smaller organic firms?
8. Why is there widespread confusion among consumers regarding the differences between organic and natural foods?
9. How could organic standards be strengthened to encourage climate friendly diets, plastic packaging reduction, labor protection?

## Session 7: Transboundary Air Pollution: Law and Health Disparities

### Required:

1. Wargo, *Green Intelligence* (2009), “Airborne Menace,” “Who is Most at Risk?” and “The Trouble with Diesel,” pp. 207-240.
2. Zhang, Yang, et al. “Pollution Inequality 50 Years after the Clean Air Act: The Need for Hyperlocal Data and Action.” *Environmental Research Letters* 16, no. 7 (2021): 071001.

3. [IQAir. 2022. Air Quality in Switzerland.](#)

*Discussion Questions:*

1. What chemicals are regulated under US and Swiss laws?
2. How do these chemicals threaten human health?
3. How do they influence climate stability?
4. How are risks and regulatory ceilings established?
5. What pollution trading rights have been effective in reducing pollution levels efficiently?
6. What are pollution offset programs and how effective have they been?

*Session 8: Diet, Climate, and Health*

A. Readings

1. [Tilman & Clark. 2014. Global Diets Link Energy & Health. Nature.](#)
2. [Khoury et al. 2015. Increasing Homogeneity of Global Food. PNAS.](#)
3. [Switzerland's Greenhouse Gas Inventory 2021](#)

B. Not Required

1. [Pew Trust. Putting Meat on the Table Exec Summary.pdf](#)
2. [Rao. 2018. Healthy Affordable Climate Friendly Diets.](#)

C. *Discussion Questions*

1. Design a diet that maximizes nutritional health, minimizes greenhouse gas emissions, and minimizes *energy expended / gram of protein produced*.
2. What is global dietary convergence & why is it a concern?
3. Why are livestock energy intensive compared with plant derived protein?
4. What species of plants and animals provide the majority of the world's food supply?
5. How do diets vary by demographic characteristics?
6. How are intellectual property rights assigned to plant and animal genetic materials?
7. What human health effects result from a diet high in animal products?
8. What human health risks and costs are associated with drug resistant microbes in foods?
9. How does industrialized livestock production diminish water quality and what regulations limit pollution?
10. How and why are pharmaceuticals employed in livestock production? What is their potential to cause resistant strains of bacteria? What is the environmental fate of these chemicals, and how might contamination be prevented?

## ***Session 9: Food Identity: Labeling & Advertising***

### ***A. Session Readings:***

1. Olmstead. 2017. Food Fraud Introduction.
2. Liu et al. 2020. Calorie Menu Labeling.
3. Territorial Designations. CH-DE-EU. Comparison. 2018.pdf
4. Mueller. Olive Oil: Slippery Business. The New Yorker.
5. Olmstead. 2017. Fish Fraud.pdf

### ***B. Discussion Questions:***

1. How should ingredients, origin, additives, and nutrients be labeled?
2. What degree of detail should be available to consumers?
3. How should claims of benefits be verified, and warning of risk be expressed?
4. Should firms be allowed to strategically target advertising toward demographic and minority groups?
5. How should governments balance restrictions on false and deceptive advertising and labelling with rights of free speech?
6. Should individuals be allowed to criticize firms' products without fear of liability?
7. What level of government should set advertising and labeling standards, and should cantons or municipalities be allowed to establish more restrictive laws and regulations than the federal government?