Tentative Syllabus

KAIST College of Business | Graduate School of Green Growth

Green Business: Theory and Practice (Researcher track)
Fall 2017

Course ID/section no.	GG501EB
Course title in Korean	녹색경영론
Lecture	Tuesdays and Thursdays, 10:00-11:20am | TBD (Meeting time can be changed with the consent of all)
Instructor	Prof. Chung, Hakjin (정학진)
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Office hours	After class & by appointment

Course Description:

Environmental sustainability is no longer a fringe concern in both management practice and research. In recent years, it has become a core mission to the success of the business. As a result, numerous proposals, campaigns, policies, and initiatives are announced and carried by the government and corporate bodies. However, in spite of these active efforts associated with the corporate sustainable management, environmental problems continue to worsen. To make improvements, it is important to look critically at the root cause of the problems and understand the motivations and incentives for stakeholders. The focus of this course is to explore a variety of environmental issues, challenges, and solutions from an academic perspective.

To this end, this course helps students (a) to understand the nature of contemporary research from a variety of fields that address many facets of the corporate environmentalism and (b) to identify promising avenues of future research that could help improve our ability to manage it effectively. We will evaluate the literature by reading and discussing a wide range of research papers. We will also explore new avenues of research by expanding these discussions into products that formulate research proposals and begin to execute them. Note that this course focuses on the academic perspective of the related issues and aims to discover research problems. If you wish to study the environmental issues primarily from the managerial perspectives, you can take GG501EA.

Throughout the course, selected topics related to "green business" (corporate environmental sustainability) will be discussed from the multi-disciplinary standpoint. This reflects the fact that the environmental sustainability is a multi-disciplinary concept in its nature and, therefore, should be treated and analyzed with a wide variety of academic fields and skills. That is, to address the corporate sustainability problem, it requires the holistic view including economics, operations, marketing, finance, accounting, and strategy of business. For instance, for making the successful transition to clean energy, we need understand the operational value of new energy, the current energy market structure, the financial risk for clean energy projects, and more importantly, the politics of energy. Grounded in this holistic view point, this course covers a wide variety of literature including economics, operations, marketing, and finance. This will also allow students to experience the rich methodologies that have been used in the literature to address sustainability problems.

Course Outline:
The class meeting will be consisting of a combination of lecture, in-class discussion, and student presentations. Throughout the course, we will explore the various environmental issues focusing on the firm's managerial decision-making process. In particular, this course will cover the following topics:

- Economic and Legal Views
- Environmental Economics and Industrial Ecology
- Extended Producer Responsibility
- Closed-loop Supply Chains
- Energy Sustainability
- Service-based Economy for Sustainability

This course may also cover selected cases that provide lessons about complexities associated with environmental challenges.

Evaluation:
The final grade will be based on class participation (20%), presentations (40%), and a final project (40%).

Class Participation:
Class participants should be well prepared to participate in the discussion. This means, all participants read the materials and come to class with questions. Depending on the background of students, I will later provide more details about the reading instructions. I may cold call at times to make sure everybody has a chance to participate or to jumpstart a discussion.

At the beginning of each session, class participants hand in one-page notes (e-mail preferred). A key question, issue, concept, and thought related to the assigned readings should be written out and these will serve as topics for in-class discussions. For example, this note can describe: (a) the problem addressed in the paper and the literature to which it contributes, (b) methods used to study the problem, (c) major results of the paper, (d) comments on the paper (e.g., problems with the approach, issues that were not addressed, techniques that might be applicable in other contexts, etc.).

Presentation:
Participants will be assigned specific readings to present or discuss. Handouts for other students or presentation slides as visual aids are highly recommended. Presentations should be contained within 10-15 slides. The use of graphics (flowcharts, boxes & arrows, etc.) is encouraged. In addition to the presenter, I will identify a discussant for each paper in the session. All students will hand over the note cards (see above) with their questions to the discussant. The discussant should then categorize these and select the pertinent ones (given the time constraint) to bring up. The discussant should first put forth his/her views and then invite further discussion from the remaining students. Finally, the discussant concludes with an overall critique and possible future research directions.

Term paper:
One of the main goal of this course is to help students to develop a research idea. A term project can be performed by a team (of 2) or by individual. The chosen research question for the term paper could be among those that originate in-class discussions or that closely relates to the content of the course. It is strongly recommended that you discuss your ideas with me anytime and I will do my best to guide you through the process.

In Week 7-8, Students will give a short presentation (15 minutes) and submit a 2-page Project Proposal to identify an area, research objective, research method, action plan, and expected outcomes. This replaces midterm tests. If you haven't decided on the subject of your term paper by that time, you can choose one academic paper related to the Green Business from your area and present this as an alternative option for midterm.

The Final Project will flesh out this area into a detailed proposal for an original research project, which includes: (a) a description of the problem, (b) a literature review that summarizes previous work relevant to the problem, (c) explanation of the methods and approach to be used to address the

problem, and (d) preliminary results (e.g., treatment of a simplified version of the problem). Students will give a presentation in class (Week 14-15) and submit the term paper in Week 16.

Readings:
There is no required text book. Essential readings will be provided electronically prior to courses. A number of case readings and papers will be added to the list below and I will specify the required and supplementary readings. Additionally, some handouts may be provided during class as required.

Economic and Legal Views

1. Lovins, A. B., L. H. Lovins, P. Hawken. 1999. A Road Map for Natural Capitalism. *Harvard Business Review*. (May-Jun) 145-158.
2. Reinhardt, F. 1999. Market Failure and the Environmental Policies of Firms: Economic Rationales for "Beyond Compliance" Behavior. *Journal of Industrial Ecology*. 3(1) 9-21.
3. Joskow, P. L., R. Schmalensee, E. M. Bailey. 1998. The Market for Sulfur Dioxide Emissions. *The American Economic Review*. 88(4) 669-685.
4. Enkvist, P., Tomas Nauclér, and Jerker Rosander. "A cost curve for greenhouse gas reduction." *McKinsey Quarterly* 1 (2007): 34.
5. Lewis, Tracy R. "Protecting the environment when costs and benefits are privately known." *The RAND Journal of Economics* (1996): 819-847.
6. Kotler, Philip. "Reinventing marketing to manage the environmental imperative." *Journal of Marketing* 75.4 (2011): 132-135.

Environmental Economics and Industrial Ecology

7. Externalities and Public Goods (Chapter 18)
8. National Center for Environmental Economics. 2001. The United States Experience with Economic Incentives for Protecting the Environment. [chapter 3 only].
9. Smith, V. M., G. A. Keoleian. 2004. The Value of Remanufactured Engines: Life-Cycle Environmental and Economic Perspectives. *Journal of Industrial Ecology*. 8(1) 193-221.
10. Corbett, C. J., R. D. Klassen. 2006. Extending the Horizons: Environmental Excellence as Key to Improving Operations. *Manufacturing and Service Operations Management*. 8(1) 5-22.
11. Bovenberg, A. Lans, and Ruud A. De Mooij. "Environmental levies and distortionary taxation." *The American Economic Review* 84.4 (1994): 1085-1089.
12. Nordhaus, W., 2015. Climate Clubs: Overcoming Free-riding in International Climate Policy. American Economic Review 105(4): 1339-1370.

Extended Producer Responsibility

13. Organization for Economic Cooperation and Development (OECD). 2001. Extended Producer Responsibility: A Guidance Manual for Governments. [selected chapter only].
14. Subramanian, R., S. Gupta, B. Talbot. 2009. Product Design and Supply Chain Coordination under Extended Producer Responsibility. *Production and Operations Management* 18(3) 259-277.
15. Plambeck, E. and Q. Wang, "Effects of E-Waste Regulation on New Product Introduction", *Management Science*, Vol. 55, No. 3, March 2009, pp. 333–347.
16. Atasu, A., Luk van Wassenhove, and Mikos Sarvary, 2009. "Efficient Take-Back Legislation", *Production and Operations Management*; May/Jun; 18(3).
17. Atasu, Atalay, and Ravi Subramanian. "Extended Producer Responsibility for E-Waste: Individual or Collective Producer Responsibility?." *Production and Operations Management* 21.6 (2012): 1042-1059.

Closed Loop Supply Chains

18. Guide and van Wassenhove, 2009, The Evolution of Closed Loop Supply Chain Research, *Operations Research*, 57(1), p. 10-18
19. Toktay, L.B., L. M. Wein, and S. A. Zenios, 2000. Inventory Management of Remanufacturable Products. *Management Science*. 46(11), p. 1412-1426.
20. Savaskan, R. C., S. Bhattacharya, L. N. Van Wassenhove. 2004. Closed-Loop Supply Chain Models with Product Remanufacturing. *Management Science*. 50(2) 239-252.
21. Debo, L. G., L. B. Toktay, L. N. Van Wassenhove. 2005. Market Segmentation and Product Technology Selection for Remanufacturable Products. *Management Science*. 51(8) 1193-1205.
22. Agrawal, V., A. Atasu, and K. van Ittersum, 2015, "Remanufactureing, Third-Party Competition and Consumers' Perceived Value of New Products," *Management Science,* 61(1), 60-72.
23. Atasu, Atalay, Miklos Sarvary, and Luk N. Van Wassenhove. "Remanufacturing as a marketing strategy." *Management Science* 54.10 (2008): 1731-1746.

Energy Sustainability

24. Jeffrey Chow, Raymond J. Kopp, and Paul R. Portney, "Energy Resources and Global Development," *Science*, 28 November 2003, 302: 1528-1531.
25. Robert Solow, "The Economics of Resources and the Resources of Economics," *American Economic Review*, May, 1974, 64: 1-14.
26. Popp, David. "Induced innovation and energy prices." *The American Economic Review* 92.1 (2002): 160-180.
27. Popp, David. "R&D subsidies and climate policy: is there a "free lunch"?."*Climatic Change* 77.3-4 (2006): 311-341.

Service-based Economy for Sustainability

28. Agrawal, V., I. Bellos, 2015, "The Potential of Servicizing as a Green Business Model," forthcoming in *Management Science*.
29. Agrawal, V., M. Ferguson, L. B. Toktay, and V. Thomas, 2012, "Is Leasing Greener than Selling?," *Management Science*, 58(3), 523-533.
30. Bellos, I., and M. Ferguson, 2016, "Moving from a Product-Based Economy to a Service-Based Economy for a More Sustainable Future," forthcoming in *Sustainable Supply Chains*, Bouchery, Y., T. Tan, J. Fransoo and C. Corbett (Eds.) Springer Publishing.