Georgia Institute of Technology / Tokyo Institute of Technology

**International Affairs 4813**

**ENERGY, ENVIRONMENT, AND POLICY**

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**COURSE OBJECTIVES AND ORGANIZATION**

This course – taught as part of the *Japan Summer Program in Sustainable Development* and Georgia Tech’s *Center for Serve-Learn-Sustain* initiative – explores the interface between energy security, environment sustainability, and societal acceptance through traditional classroom instruction and problem-based learning. We begin with the recognition that energy choices produce environmental consequences, environmental actions have an economic impact, and societal context shapes the interplay of these forces. Although a variety of energy and environment-related issues will be addressed in this course, we will focus intensively on the factors that produce variation in responses to common challenges of climate change among otherwise similar nations, cities, and other entities. This puzzling variation – highlighted, for example, in the evolution of energy/environmental policies at the national level in Japan and the United States, and at the municipal level in Tokyo and Atlanta – draws attention to the fact that that environmental action cannot be divorced from economic concerns, and that, ultimately, societal acceptance is crucial in determining whether or not an outcome is sustainable.

While much of your time will be spent working in teams, especially toward the end of the course, the first three weeks will be set aside for a classroom lectures. The aim of these lectures is to create a common conceptual framework, highlight the stakeholders and their respective roles, and equip you with essential tools for evaluating sustainability. You will use these tools to assess the prospects for *inclusive green growth* – the use of natural resources in a sustainable manner that assures that all residents share in the economic benefits – at the national- and municipal levels. In this exercise, teamwork is essential because – as you will discover – solving complex sustainability problems in a short amount of time requires many minds and many hands. To be successful in this course, therefore, you must become a *self-directed learner*, ready and able to extend your knowledge through systematic inquiry. You will be spending time out of class seeking the most reliable, up-to-date and relevant information needed to solve the problem. The problem you and your team will be tasked with solving is designed to help you deepen and broaden your conceptual base in engineering and social scientific analysis. To succeed in all this, you must hone your teaming, communication, and interpersonal skills. In sum, you will need to become and disciplinary- and cultural *boundary spanner*.

**Area E Approved Learning Outcome:**

Students will demonstrate the ability to describe the social, political, and economic forces that influence social behavior.

This course explores the interface between energy security, environment sustainability, and societal acceptance. At the end of the course, students will be able to describe the ways in which energy security and environmental protection are two side of the same coin, and how both concerns require societal acceptance to be sustainable.

**Course Learning Outcomes:**

* Through comparative analysis of energy policy choices and their environmental consequences (and vice versa), students will demonstrate an understanding of how – and with what consequences – the social, political, and economic forces that influence a critically important area of sustainability develop, persist, and change.
* Students will demonstrate an understanding of how, why, and with what consequences the social, political, and economic forces that influence sustainable development develop, persist, and change.
* Students will become more aware of the diversity of the world’s cultural, ethical, and institutional systems and the shaping effects of these systems on policy and behavior.
* Students will be able to work in multidisciplinary, multicultural groups in a way that demonstrates respect for their colleagues and efficiency in working collaboratively towards projects and goals.
* Students will be able to express their arguments clearly and effectively both in written reports and class discussions.

**COURSE REQUIREMENTS**

The success of this course depends upon active, informed student participation. In addition, course grading will be determined by student performance on a midterm examination and three group projects. With regard to the group projects, you are required to participate in the preparation and oral delivery of a research design exercise, PowerPoint presentation (15 minutes in duration, followed by Q&A) and in the writing of a technical report (approximately 15 pages in length). These will be used to evaluate the progress you are making in the areas of expression, organization and clarity in oral and written communication. The PowerPoint presentation will be delivered at a forum to be held during the final classroom session of the course. *All members of the group are required to participate in the oral presentation.* Course grades will be weighted as follows:

* midterm examination: 30 percent
* research design project (group project): 10 percent
* oral presentation (group project): 30 percent
* written report (group project): 30 percent

**HONOR CODE AND ACCOMMODATION FOR STUDENTS WITH DISABILITIES**

All students are expected to behave in accordance with the policies of the Georgia Tech Honor Code with respect to conduct and academic honesty. Anyone engaging in acts that violate these policies, such as plagiarism or cheating, will be penalized. For more information on the Honor Code, see the Office of Student Integrity website at www.osi.gatech.edu and the text of the honor code at www.policylibrary.gatech.edu/student-affairs/academic-honor-code. If you are not familiar with what constitute plagiarism, please ask. Being uninformed of the policies does not absolve you from the responsibility of following them.

Special Accommodations: If you have or acquire any sort of condition that may require special accommodation(s), please inform me as soon as possible so that we may make the appropriate arrangements. Proper documentation from the Office of Disability Services will be required. Please contact that office (<http://disabilityservices.gatech.edu>) to get more information on available services and accommodations, as well as documentation requirements.

**COMMON READINGS AND COURSE MATERIALS**

Common readings – i.e., required readings for the entire class – are available either through the Georgia Tech Library’s *e-journals* portal or will be uploaded to T-Square or GoogleDrive. However, be aware that the bulk of the reading you do for this course will be determined in discussions within your PBL group. If you have questions or wish to pursue a particular topic in more depth, you are encouraged to consult with one of the course facilitators.

**DISCUSSION TOPICS AND COMMON READING**

**Week 1**

7/2 **Energy, Environment, and Society in Sustainable Development**

***Common reading:***

* World Bank, *Inclusive Green Growth: Pathways to Sustainable Development* (Washington, D.C.: World Bank, 2012) – available for download at http://siteresources.worldbank.org/EXTSDNET/Resources/Inclusive\_Green\_Growth\_May\_2012.pdf

***Reference materials:***

* “Energy Sources: What are the Pros and Cons,” *DLIST Benguela*(<http://archive.iwlearn.net/www.dlist-benguela.org/Burning_Issues/Energy/Energy_sources_253A_What_are_the_Pros_and_Cons/default.htm>)

7/4 **Energy Security and Environmental Protection – Two Sides of the Same Coin**

***Common reading:***

* Carlos Pascual, “The New Geopolitics of Energy,” *Brookings Institution* (2015) (<http://energypolicy.columbia.edu/sites/default/files/energy/The%20New%20Geopolitics%20of%20Energy_September%202015.pdf>).
* Garrett Hardin, “The Tragedy of the Commons,” *Science* 162 (No. 3859, Dec. 1968) ): 1243-1248 (available online at: <http://www.garretthardinsociety.org/articles/art_tragedy_of_the_commons.html>)
* Elinor Ostrom, *Governing the Commons* (1990), pp. 1-32 (uploaded to T-Square).

**Week 2**

7/10 **Energy Security, Environmental Protection, and Societal Acceptance in the United States and Japan**

***Common reading*** (uploaded to T-Square)***:***

* John S. Duffield and Brian Woodall, “Japan's New Basic Energy Plan,” *Energy Policy* 39 (June 2011), pp. 3741–3749
* Brian Woodall, “The Development of Japan’s Developmental State: Stages of Growth and the Social Costs of Energy and Export Promotion Policies,” book chapter in *East Asian Development Model: 21st Century Perspectives* (Shiping Hua and Ruihua Hu, eds.). London: Routledge, 2014. Pp. 101-120 (uploaded to T-Square).
* James Baker, III et al, “The Conservative Case for Carbon Dividends” (February 2017) (uploaded to T-Square)
* “Coral Davenport and Eric Lipton, “How G.O.P. Leaders Came to View Climate Change as Fake Science,” *New York Times* (June 3, 2017) (uploaded to T-Square)
* Coral Davenport and Adam Nagourney, “California Engages World, and Fights Washington, on Climate Change,” *New York Times* (June 3, 2017)
* Miranda A. Schreurs, “Divergent Paths: Environmental Policy in Germany, the United States, and Japan,” *Environment* 45 (No. 8, 2003), pp. 9-17

7/12 Energy Smart Technologies and Sustainable Green Growth” (Kumar)

*Common reading:* “Energy Smart Technologies in the Evolving Power System”

(<http://www.pewtrusts.org/~/media/assets/2016/02/the_smart_grid_how_energy_technology_is_evolving_print.pdf>); other readings TBD

*Interim Policy Brief due*

**Week 3**

7/17 Using ICTs for Environmental Protection and Poverty Reduction in the Developing World (Kumar)

*Common reading* (uploaded to T-Square): TBD

7/19 Midterm Examination (30 percent of final grade)

**Week 4**

7/24 Group meeting (facilitators: Woodall & Pedicino)

7/26 Group meeting (facilitators: Woodall & Pedicino)

**Week 5**

7/31 Group meeting (facilitators: Woodall & Pedicino)

***Practice session for PowerPoint presentation***

***Pre-submission review and discussion of written report***

8/2 PowerPoint presentations and written reports

***PowerPoint presentation due***

***Written report due***

***Written self/peer evaluation due***