COURSE DESCRIPTION

There is global experience and examples that show how comprehensive organizational sustainability criteria (using Sustainable Development as a point of reference) integrated into the ‘upstream’ supply chain management/procurement process and decision-making of public and private agencies, organizations and corporate entities can improve financial and environmental performance, while addressing ethics, social regeneration, resource/waste impacts and economic development concerns (e.g. the ‘triple bottom-line’). This course will allow students to participate in applied research (real-time projects currently being developed at Rutgers, in the U.S., and around the world; e.g. this semester you will be participating in at least two research projects that I am currently involved in … so you can explore the application of environmentally responsible supply chain and ‘green’ procurement principles across multiple national and international public/private sectors. This research will include designing supply chain management and procurement systems, which address environmental, social and ethical considerations in organizational and corporate policy, program and reporting (corporate social and environmental reporting - CSR). Research themes include (but are not limited to):

- supply chain management and procurement process
- understanding sustainability, carbon and greenhouse gas emission, climate change
- supply chain archeology; source and landfill waste archeology
- greening the public and private supply chain management and procurement process,
- product design, development and marketing (product life cycle),
- green marketing and green washing (false labeling and environmental claims)
- the competitive green purchasing process,
- policy design, development and performance measurement,
- developing green contracts,
- procurement which promotes low carbon emission considerations and zero waste (avoidance and minimization)
- social and economic regeneration; civic infrastructure policy,
- ERP - e-procurement applications and sustainability, waste/energy tracking and reporting
- life cycling analysis/costing (LCA/C), return on investment (ROI), net present value modeling (NPV),
- corporate social and environmental reporting (CSR)
COURSE MATERIALS

Textbook Referenced for Class


Additional cases and articles will be made available via Sakai. Additional information will be provided in class.

Course Objectives:

1. To examine various corporate and global environmental and sustainable development issues and how they can be integrated into strategic procurement and supply chain management models.
2. Develop world-class systems-thinking skills needed to examine and develop complex procurement, strategic sourcing and supply chain management systems tools for corporate or organization resource and risk assessment planning and reporting.
3. Enhance knowledge and skill in the use of LCA/C, ROI, NPV, CSR, negotiation and related strategic sourcing tools.
4. Participate in an individual green product research project

CLASS ORGANIZATION & ADMINISTRATION

Teaching Method

The course will be largely taught lecture-presentation, pre-lecture podcasts and case study discussions. All class-related material (lecture presentations, messages, etc.) will be posted on Sakai. Additional visual material and demos may be shown in some classes.

Students should be enrolled in Sakai (SK) to access the posted materials. The URL is: [http://sakai.rutgers.edu](http://sakai.rutgers.edu). The initial Sakai login and password are the same: initials (two letters) followed by the last 4 digits of the Social Security Number. It is a good idea to change the password in the first login session. If you cannot access Sakai please let me know.

Class Participation

While a minimum level of participation is expected of every member of the class, primary emphasis is placed on the quality of the classroom contributions. Your class participation grade is based on the following criteria:

- Evidence of careful preparation of assigned readings, cases, and practice problems
- Clarity and conciseness of your recommendations
- Quantitative and qualitative analysis to support your conclusions
- Behavior that is detrimental to the classroom learning environment will negatively affect this portion of your grade

Research Project Briefs

You must submit a one-page research project brief/write-up at the time we discuss the progress of your research. This is essentially a progress report on how you are progressing with your research project. There will be three project briefs to be discussed. Late progress briefs will be penalized.
Term Project (Term Project Guideline will be posted on Sakai)

Basic Information in Addition to Term Project Guidelines:

Students are required to complete a term research project, which analyzes and critiques an existing ‘non-green’ product (which I will assign) and your research and recommendation of a high-performing cost-effective ‘green’ product (a product that you have researched the integration of environmental criteria (discussed in class as well as independent research that you have conducted) into the supply chain of an actual product). A summary of the project must be presented to the class during the mid-term exam period (a summary of your Research Project Briefs).

Research Project Description: To complete this project, you will investigate, analyze, evaluate, and make recommendations about the environmental enhancements that can be made to a product using the supply chain/management of the product as your guide. To do this, you will participate in real field research (which we will cover during the first few classes) e.g. this field research may involve an interview with representatives from companies involved in the production of the product assigned to you. Starting topics/questions to guide the development of your project’s content are listed below. At a minimum the written report should provide thoughtful and detailed coverage of these topics. Only papers that creatively integrate these topics with others not covered by the questions below will be considered for higher grades. In this regard, you should consult with me about the direction and progress of your project during the semester, (e.g., TALK TO ME FREQUENTLY!!).

Some of the topics used throughout your term research paper project should include:

1. Supply Chain Archeology (embedded and embodied waste and energy input and outputs)
2. Corporate Social and Environmental Reporting (CSR)
3. Supply environmental risk assessment and management
4. Supply chain Life Cycle Analysis/Costing (LCA/C)
5. Net Present Value (NPV) incorporating social and environmental impacts
6. Supply chain, climate chain impacts data analysis
7. Developing eProcurement criteria to track commodity environmental impacts
8. Supply chain waste, water and energy management
9. Developing competitive environmentally responsible contract

The final term presentation should be 5 minutes long plus about 2 minutes for questions. Your objective is to develop a real-life environmentally responsible product solution (using the supply chain to conduct your research); additional guidelines provided via the Term Project Guidelines. In other words, your task is to maximize the product value-add while being sensitive to performance and price. Your grade for this assignment will be predominantly based on three criteria: 1) quality of the content delivered, 2) quality of the presentation, and 3) extent to which your presentation adds to our knowledge of the topic above and beyond the already assigned class material. Input from your class peers will be solicited to assist the instructor in these assessments.

Project Outline and Written Report: A brief outline of your project that identifies the product/company, your research approach and resources and the topic areas to be covered is due no later than September 13th. The final written report for the project is due on December 20th. It should not exceed 15 pages of written text (quality before quantity), not including exhibits, and should include an appropriate bibliography. Make your project a report, not an essay. Use headings like the ones shown in the guidelines above. You should perform this research project as if you were a consultant hired by the firm to help them introduce an equivalent ‘green’ product while possibly improving their SCM capabilities. Bottom-line … make sure you provide value to the research and project.
**Project Oral Presentations:** Everyone will give an oral presentation to the class on a portion of their project. Presentations will be evaluated and judged on content, style, and timing (it is imperative that your presentation fit into the time requirements for class—if the presentation goes too long, you may be asked to stop). Each team member’s oral presentation will be evaluated as follows:

<table>
<thead>
<tr>
<th>Content (SCM activities)</th>
<th>50%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presentation Impact (power points, speaking skills &amp; time)</td>
<td>50%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Your presentation style is limited by your imagination and the dictates of good taste. Remember, you will be trying to teach your audience about some aspect of the project in a memorable way. Don’t just read from the project report—pick out the most important items and concentrate on making those as interesting to the audience as possible. Practice the presentation so you can deliver it in about 5 minute’s total. You do not have to present your entire project.

Although this is an individual project, I will be encouraging you to work in groups (to share thoughts and concepts). Since groups are used extensively in business, this is an opportunity for you to work on your “group” skills.

Final thought regarding the project: Start early and discuss the project often with me. This is a major part of your grade.

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**FINAL GRADE ASSIGNMENT**

**Grading Criteria**

<table>
<thead>
<tr>
<th>Class Participation:</th>
<th>10%</th>
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<tbody>
<tr>
<td>Research Project</td>
<td>40%</td>
</tr>
<tr>
<td>Research Project Briefs</td>
<td>15%</td>
</tr>
<tr>
<td>Midterm Exam</td>
<td>10%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>25%</td>
</tr>
</tbody>
</table>

**Total:** 100%

Your grade will be determined using the grading criteria above. Grading is not an exact science. Any cutoff point places some students just a point or two below that line. Being just below a cutoff point is frustrating, but is not sufficient reason to request a grade change. There is no set grade distribution for this class. I will grade as fairly as I can, and you will receive the grade you earn.

**Extra Credit:** I will increase one of your test scores by 10 percentage points if you arrange for a speaker to come to class to discuss one of the following: purchasing/supplier relationship management (SRM) issues, quality/customer queuing issues, inventory management issues, logistics/transportation/warehousing issues, or customer service/CRM issues. A student can only do this once, and the speaker, topic, and I must first approve timing. This will be done on a first-come, first-served basis, and only three talks can be scheduled per semester.
<table>
<thead>
<tr>
<th>Day</th>
<th>Session 1</th>
<th>Session 2</th>
<th>Assignment Due</th>
</tr>
</thead>
</table>
| 1   | 9/5  
Course Introduction; Overview of Supply Chain & the Environment (Global Warming, Carbon Emissions); Purchasing Power and Sustainability, Supply Chain and Marketing | Research Overview  
Supply Chain  
Archeology  
Using Systems Thinking Analysis in Supply Chain | Form teams and in-class “draft” of group assignments |
| 2   | 9/12 
Innovation – Next Generation Technology and Development – The Next Industrial Revolution | Global Strategic Sourcing  
Environment/Sustainable Development and Globalization |  |
| 3   | 9/19 
Life-cycle Thinking, Following the Supply Chain from Raw Material to Waste Management and Recycling | Life cycle accounting, Environmental and economic challenges, Economic value vs. environmental impact added: Full Cost |  |
| 4   | 9/26 
Developing Green RFP/Qs and Contracts | International Green Purchasing Case Studies  
**Term Project Work** |  |
| 5   | 10/3 
Energy Conservation Management | Net Present Value (NPV); Social and Environmental Impact Analysis (F. Felder Presentation)  
**Term Project Work** |  |
| 6   | 10/10 
Environmental Supply Chain (GP Professional Presentation by TBD) | Greening the Supply Chain  
A University and Corporate Perspective; Sustainability Leadership: Developing and Implementing Strategic Vision  
**Term Project Work** | Term Project Outlines Due via email to K. Lyons (klyons@business.rutgers.edu) |
| 7   | 10/17 
Lecture and MIDTERM PROJECT REVIEWS | Lecture and MIDTERM PROJECT REVIEWS  
**Term Project Work** | Students will provide a 3-5 min overview of their project during Class this week |
| 8   | 10/24 
Greening Supply Chains: A Competence-based Perspective | Supply Chain Management and Understanding Climate Change: Science, Policy and Supply Chain Impacts  
**Term Project Work** |  |
<table>
<thead>
<tr>
<th>9/10/31</th>
<th>‘Smart’ Design: Greening the Total Product System</th>
<th>Supply Chain Environmental Quality Case</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/7</td>
<td>Environmental Management in Automotive Supply Chains: An Empirical Analysis</td>
<td>Green Building Design and Operations: Benefits, Strategies and Resources; Supply Chain and the Clean Water Program Regulations and Management</td>
</tr>
<tr>
<td>11/7</td>
<td>Supply Chain Management and the Electronics Revolution: Keys to Sourcing, Purchasing, Use, and Certified Recycling; Basel Action Network Electronic Waste (US, Africa and</td>
<td></td>
</tr>
<tr>
<td>11/14</td>
<td>Environmental Quality in the Supply Chain of an Original Equipment Manufacturer: What does it mean?</td>
<td>Carbon Footprints and Climate Risk: Tools for Business and Government (Public Purchasers); Climate Protection and Environmental Sustainability (SK)</td>
</tr>
<tr>
<td>11/21</td>
<td>Green Supply-Chain Management &amp; Advanced Nano and Technology</td>
<td>Term Project Work</td>
</tr>
<tr>
<td>11/28</td>
<td>Environmental Quality in the Supply Chain of an Original Equipment Manufacturer: What does it mean?</td>
<td>GP Lecture TBA Term Project Work</td>
</tr>
<tr>
<td>12/5</td>
<td>GP Lecture TBA</td>
<td>GP Lecture (Term Project Papers Due)</td>
</tr>
<tr>
<td>12/12</td>
<td>Term Project Presentations)</td>
<td>Term Project Presentations)</td>
</tr>
<tr>
<td>12/19</td>
<td>FINAL EXAM</td>
<td>FINAL EXAM</td>
</tr>
</tbody>
</table>

Notes:
A. Schedule is subject to minor changes at the professor’s discretion.
B. Abbreviations: SK = Sakai
C. Team Peer Evaluations – Evaluation documents will be distributed prior to the end of the semester

**Academic Misconduct**

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. All suspected incidents of academic misconduct will be referred to an Academic Integrity Facilitator for investigation. Unfortunately, Rutgers students are failed or suspended every year for violations of academic integrity. If you have any doubt what constitutes a violation of academic integrity, please visit the Student Judicial Affairs website [http://academicintegrity.rutgers.edu/](http://academicintegrity.rutgers.edu/).

**Disability Accommodations**

If you need an accommodation based on the impact of a disability, please arrange an appointment with me as soon as possible. We need to discuss the course format and explore potential accommodations. I rely on the Office of Disability Services [http://disabilityservices-uw.rutgers.edu/](http://disabilityservices-uw.rutgers.edu/) for assistance in verifying need and developing accommodation strategies. You should start the verification process as soon as possible.

**Research Labs and Affiliations:**
- Rutgers Supply Chain Archeology Lab (K. Lyons Research Lab)
- Rutgers EcoComplex – [http://ecocomplex.rutgers.edu](http://ecocomplex.rutgers.edu)
- Rutgers Energy Institute – [http://rei.rutgers.edu](http://rei.rutgers.edu)
- Rutgers Center for Sustainable Materials - [http://sustain.rutgers.edu/](http://sustain.rutgers.edu/)