

Supply Chain Management

Course Number: 33:799:440

Course Title: Supply Chain Environmental Management/ Green Purchasing

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/downstream’ supply chain management/procurement decision-making process of public and private agencies, organizations and corporate entities. With your input and term research, you will see how these organizations can improve financial and environmental performance, while addressing ethics, social regeneration, resource/waste impacts (supply chain archaeology) 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 concepts and framework, global warming, carbon and greenhouse gas emission, climate change
- • supply chain archeology; source and landfill waste archeology
- • African Sustainable Development; Mandela Washington Fellowship; Corporation
- • greening the public and private supply chain management and procurement process,
- • sustainable product design, development and marketing (product life cycle),
- • green marketing and greenwashing (false labeling and environmental claims)
- • the competitive green purchasing process,
- • environmental legislation, policy design, development and performance measurement,
- • developing green contracts,
- • procurement which promotes low carbon emission considerations and zero waste (avoidance and minimization), closed-loop supply chains
- • renewable energy, green buildings, warehouse, operations and facilities
- • 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
- • corporate social and environmental reporting (CSR), community engagement and impact

- logistics and transportation

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 **Canvas**. However, the instructor reserves the right to assign verbal assignments that may not be posted on Canvas. Additional visual material and demos may be shown in some classes.

Students should be enrolled in **Canvas** to access the posted materials. The URL is: <http://canvas.rutgers.edu>. If you cannot access Canvas, please let me know.

COURSE MATERIALS

A Roadmap to Green Supply Chains - *Using Supply Chain Archaeology and Big Data Analytics*, K. Lyons, Industrial Press (2015), ISBN No. – 9780831135140.

Check Canvas (canvas.rutgers.edu) and your official Rutgers email account regularly. *Additional cases and articles will be made available via Canvas. Additional information will be provided in class.*

LEARNING GOALS AND OBJECTIVES

This course is designed to help students develop skills and knowledge in the following area(s):

Global perspective. Students completing this course will have the breadth of understanding of climate and environmental impact perspective necessary to integrate these concepts into traditional supply chain and purchasing processes while succeeding in a global and diverse business environment.

Effective Communication. Students completing this course will be able to effectively communicate the issues associated with businesses impacts and solutions to climate change via effective business practices.

- Students who complete this course will demonstrate the following:

1. To examine various community, government, corporate, public-private 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 as well as a class assignment, and one or more client research project/s (product research, Mandela Washington Fellowship research)
5. Develop a sustainability business plan
6. Obtain a Green Supply Chain-Procurement professional certification
7. Develop the ability to construct clear, concise, and convincing written business communication via sustainability-driven business plans.
8. Ability to construct and deliver clear, concise, and convincing oral communications related to course discussions and the term research project.

Students develop these skills and knowledge through the following course activities and assignments:

Assignments

Throughout the semester you will be participating in active research (e.g. Lanai Project, Community-based, Newark Manufacturing, Supplier Diversity, and Supply Chain Sustainability Documentary) as well as conducting research on behalf of your term projects (TBA). You will be providing input to these projects and research during class discussions and you will be submitting **assignments associated with these projects and research**). The assignments will be graded and will become part of your grade. Late assignments will be penalized (point reductions, etc.).

Term Project (Term Project Guideline will be posted on Canvas); Project #1

Basic Information in Addition to Term Project Guidelines:

Students are required to complete a term research project. You will be 1) developing a comprehensive climate impact/supply chain materials-to-product database, 2) research which analyzes and critiques an existing 'non-green' product (which you will choose), 3) your research and recommendation of a high- performing cost-effective alternative 'green' product (a product that you have researched the integration of environmental criteria based on discussions in class as well as independent research that you have conducted. A summary of the project will be presented to the class during the mid-term and final exam period.

Climate Impact Materials-to-Product Supply Chain Research Project Description: To complete this project, everyone will participate in product material climate impact research, you will use this initial research to investigate, analyze, evaluate, and make recommendations about the environmental enhancements that can be made to an existing (or alternative) product using the supply chain/management of the product as your research process 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 (as well as the alternative green product), Internet research as well as interviews with the consumers of the products you are researching. At a minimum the database or final written report should provide thoughtful and detailed coverage of the topics listed below. Only databases/papers that creatively integrate these topics with others not covered by the items below (and in the Term Project Guide) 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!!).

The topics used throughout your term research paper/database project should include:

1. Climate Impact of Materials to Product (Research Database)
2. Supply chain, climate chain impacts data analysis
3. Developing eProcurement criteria to track commodity environmental impacts
4. Supply chain waste, water and energy management
5. Developing competitive environmentally responsible specifications and criteria for competitive contracts
6. Supply Chain Archeology (embedded and embodied waste and energy input and outputs)
7. Supply chain Life Cycle Analysis/Costing (LCA/C)
8. Net Present Value (NPV) incorporating social and environmental impacts
9. Corporate Social and Environmental Reporting (ISO 26000 CSR)
10. Supply environmental risk assessment and management (ISO 14001 EMS)

In short, your task is to maximize the product value-add while being sensitive to environmental impact, performance and price. Your grade for this assignment will be predominantly based on three criteria: 1) quality of the research and content delivered, 2) quality of the presentation of data, and 3) extent to which your research/data 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 Database: A brief outline of your project that identifies the product/company, your research approach and the resources that you will need to conduct your research is **due no later than: TBA in class**. The final database for the term project is due by **the last day of exams**. 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 or the Team (TBD) will give a mid-term update (2 mins) to the class. 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).

Your presentation style is limited by your imagination and the dictates of good taste. Remember, you will be trying to teach your audience about your project in a memorable way. Don’t just read from the project database—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 2 minutes (mid-term).

This will be an individual/team research project which will require exceptional individual and team innovation (individual performance will be identified and measured so that everyone participates). I will be encouraging you to work as a team and to share your techniques, struggles, successes with the research you are conducting (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.**

OPTIONAL/EXTRA CREDIT: Class Documentary Film Production

Based on your schedules, I am seeking individuals who would like to participate in the development of a film documentary on the topic of business and the environment. Even if you have no film experience, everyone can participate. You can contribute concepts and ideas or use your smart phone to capture content that we will assemble into an end of the semester documentary film. We will develop the topic and approach to the documentary as a production team project. The work will be conducted in teams or as individuals; we will decide based on how many students want to participate. No pressure ... this is supposed to be a fun class project. I will provide more information. ([Guideline and additional support documents will be posted on Canvas](#))

PREREQUISITES

33:799:301 Introduction to Supply Chain Management (Required)

33:799:305 Global Procurement and Sourcing Strategies (if Possible)

33:799:380 Introduction to Project Management (if Possible)

ACADEMIC INTEGRITY

I do NOT tolerate cheating. Students are responsible for understanding the RU Academic Integrity Policy (<http://academicintegrity.rutgers.edu/>)

I will strongly enforce this Policy and pursue *all* violations. On all examinations and assignments, students must sign the RU Honor Pledge, which states, “On my honor, I have neither received nor given any unauthorized assistance on this examination or assignment.” I will screen all written assignments through *SafeAssign* or *Turnitin*, plagiarism detection services that compare the work against a large database of past work. Don’t let cheating destroy your hard-earned opportunity to learn. See business.rutgers.edu/ai for more details.

ATTENDANCE AND PREPARATION POLICY

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/points are based on the following criteria:

- Active dialog and communication with professor, guests and fellow students during each class
- Attendance in every class (unless you have been given an excused absence)
- Evidence of careful preparation of assigned readings, cases, and practice problems
- Clarity and conciseness of your recommendations (verbal and written)
- Quantitative and qualitative analysis to support your conclusions (verbal and written)
- Participation in the class client research project (verbal and written)
- Behavior that is detrimental to the classroom learning environment will negatively affect this portion of your grade

Expect me to attend all class sessions. I expect the same of you. If I am to be absent, my department chair or I will send you notice via email and Canvas as far in advance as possible. If you are to be absent, report your absence in advance to my email: Q or via <https://sims.rutgers.edu/ssra/>. If your absence is due to religious observance, a Rutgers-approved activity, illness, or family emergency and you seek makeup work, also send [me/TA] an email with full details and supporting documentation [within 2 days of your first absence].

For weather emergencies, consult the campus home page. If the campus is open, class will be held.

Expect me to arrive on time for each class session. I expect the same of you. [If you are going to be tardy, then send me an email () and quietly enter class]

Expect me to remain for the entirety of each class session. I expect the same of you. [If you are going to leave early, then let me know prior to the start of class]

Expect me to prepare properly for each class session. I expect the same of you. Complete all background reading and assignments. You cannot learn if you are not prepared. The minimum expectation is that for each 1 hour and 20-minute class session, you have prepared by studying for at least twice as many hours.

Expect me to participate fully in each class session. I expect the same of you. Stay focused and involved. You cannot learn if you are not paying attention.

GRADING POLICY

Course grades are determined as follows:

Grading Criteria

Class Participation	10%	(Includes Exercises, participating in Class discussions)
Research Project #1	35%	
Assignments	15%	
Midterm Project Report	15%	
<u>Final Project Examination</u>	<u>25%</u>	
Total:	100%	

Extra Credit: *There will be two opportunities to obtain extra credit: 1) See Assignment #3 (Business Strategy for Deer Issue); 5 points and 2) Pre-Production for Documentary Film (was Project #2); 10 points*

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.

Grade posting: Grades will be posted throughout the semester in Canvas after you submit the assignment and the assignment's due date.

Final Grades: Your final grade is not subject to negotiation. If you feel I have made an error, submit your written argument to me within one week of receiving your final grade. Clarify the precise error I made and provide all due supporting documentation. If I have made an error, I will gladly correct it. But I will adjust grades only if I have made an error. I cannot and will not adjust grades based on consequences, such as hurt pride, lost scholarships, lost tuition reimbursement, lost job opportunities, or dismissals. Do not ask me to do so. It is dishonest to attempt to influence faculty to obtain a grade that you did not earn, and it will not work.

COURSE SCHEDULE**Day Overview/Theme Notes****Assignment Due**

1	<p>Course Introduction; Syllabus</p> <p>Introduction to Sustainability and Greening the Supply Chain, Procurement, Sourcing – Economic Drivers and Benefits</p> <p>Term Research Overview:</p> <ul style="list-style-type: none"> Building the First, Comprehensive Product and Climate Impact Database (Existing and New Products); Materials Coding for GHG Class Documentary Film Introduction 	<p>Terms: Environmentally Preferred Purchasing (EPP)/Green Supply Chain, Procurement and Sourcing (GSCPS)</p> <p>Carbon Footprints and Climate Risk</p>	
2	<p>Building the First, Comprehensive Product and Climate Impact Database (Existing and New Products)</p> <p>Rutgers Climate Action Plan (Supply Chain Connection)</p> <p>African Sustainable Supply Chains; Mandela Washington Fellowship Projects; Corporation</p>	<p>Identify and Record Product:</p> <p>Survey Monkey Link (or QR):</p> <p>Term Product Research Discussion</p>	<p>Survey Monkey QR Code:</p>
			Term Project Groups

3	<p>Overview of Supply Chain Archaeology; Archaeology; Digs</p> <p><i>Waste Management and SpecFuel</i></p>	<p>Term Product Research Discussion</p> <p>Survey Monkey Link:</p>	<p><i>Identified</i></p> <p>Identify Product (9/17/20)</p>
4	<p>Carbon Footprinting (Assignment #1 Issued)</p> <p>Term Research Project Launch; Carbon Footprinting; LCA Introduction)</p>	<p>Term Product Research Work</p>	
5	<p>Using Systems Thinking Analysis in Supply Chain Management and Procurement</p> <p><i>Life-Cycle Analysis Overview</i></p> <p>Design for Environment (DfEandE)</p>	<p>Term Product Research Work</p>	<p>Research Project Discussion</p>
6	<p>Green Product and Packaging Standards</p>	<p>Term Product Research Work</p>	<p>Carbon Footprint Due</p>
7	<p>Newark 2020 Anchor Institution Green Procurement Guidelines</p>	<p>Term Product Research Work</p>	

8	Newark Urban Agriculture Project	Term Product Research Work	In-Class Hackathon (Participation); TBD
9	Global Health – Climate Change and Developing Disaster Response Supply Chains	Term Product Research Work	In-Class Hackathon (Participation); TBD
10	NJ Off-Shore Wind; NJEDA Purchasing Disparity Study; OSW Supply Chain Project	Term Product Research Work	
11	Green Strategic Sourcing and Sustainability (RFX, Contracts-Assignment #2 Issued)	Term Product Research Work	
12	Lanai Sustainable Island Project (Lanai Assignment #3 Issued)	Term Product Research Work	

13	Term Research Project (Team Work and/or Assignment Work)	Term Product Research Work	
14	MIDTERM PROJECT REVIEWS	Term Product Research Work	Mid-Term Presentation Updates; Project #1 Sustainability IT RFP Assignment #2

			Due
15	Corporate Social Responsibility (ISO 26000); Environmental Management System (ISO 14000) Small Manufacturers (TBD)	Term Product Research Work	
16	Energy and Energy Innovation	Term Product Research Work	Lanai Database Assignment #3 Due
17	Green Purchasing Topic – Guest Speaker TBA	Term Product Research Work	
18	Green Buildings Scope 3 Emissions Update	<i>Years of Living Dangerously</i> 7:50, 21:23, 34:29, 46:00	
19	Puerto Rico Climate Corp – Guest Presentation	Term Product Research Work	Alternative Vehicle Exercise
20	Supply Chain Fashion	Term Product Research Work	
21	Supply Chain Sustainability Topic	Term Product Research Work	

	Lecture - Term		
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22	Research Project Work	Term Product Research Work	<i>Carbon Footprints Revisited</i>
23	Rutgers Climate Action Plan; Term Research Project Updates	Term Product Research Work	
24	Alternate Fuel Strategies and Next Generation Vehicles Transportation Sector (Greening Logistics)	Term Product Research Work	
25	Making the Sustainability Business Case	Term Product Research Work	
26	Maersk Guest Presentation	Term Product Research Work	Final Database Reviews
27	Lecture - Term Research Project	Term Product Research Work	
28	Lecture - Term Research Project Discussion	Term Product Research Work Class Wrap Up	Last Physical Class

	TERM DATABASE DUE		NLT The Last Day of Exams
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SUPPORT SERVICES

If you need accommodation for a *disability*, obtain a Letter of Accommodation from the Office of Disability Services. The Office of Disability Services at Rutgers, The State University of New Jersey, provides student-centered and student-inclusive programming in compliance with the Americans with Disabilities Act of 1990, the Americans with Disabilities Act Amendments of 2008, Section 504 of the Rehabilitation Act of 1973, Section 508 of the Rehabilitation Act of 1998, and the New Jersey Law Against Discrimination. More information can be found at ods.rutgers.edu.

[Rutgers University-New Brunswick ODS phone (848)445-6800 or email dsoffice@echo.rutgers.edu]

[Rutgers University-Newark ODS phone (973)353-5375 or email ods@newark.rutgers.edu]

If you are *pregnant*, the Office of Title IX and ADA Compliance is available to assist with any concerns or potential accommodations related to pregnancy.

[Rutgers University-New Brunswick Title IX Coordinator phone (848)932-8200 or email jackie.moran@rutgers.edu]

[Rutgers University-Newark Office of Title IX and ADA Compliance phone (973)353-1906 or email TitleIX@newark.rutgers.edu]

If you seek *religious accommodations*, the Office of the Dean of Students is available to verify absences for religious observance, as needed.

[Rutgers University-New Brunswick Dean of Students phone (848)932-2300 or email deanofstudents@echo.rutgers.edu]

[Rutgers University-Newark Dean of Students phone (973)353-5063 or email DeanofStudents@newark.rutgers.edu]

If you have experienced any form of *gender or sex-based discrimination or harassment*, including sexual assault, sexual harassment, relationship violence, or stalking, the Office for Violence Prevention

and Victim Assistance provides help and support. More information can be found at <http://vpva.rutgers.edu/>.

[Rutgers University-New Brunswick incident report link: <http://studentconduct.rutgers.edu/concern/>. You may contact the Office for Violence Prevention and Victim Assistance at (848)932-1181]

[Rutgers University-Newark incident report link: https://cm.maxient.com/reportingform.php?RutgersUniv&layout_id=7 . You may also contact the Office of Title IX and ADA Compliance at (973)353-1906 or email at TitleIX@newark.rutgers.edu. If you wish to speak with a staff member who is confidential and does **not** have a reporting responsibility, you may contact the Office for Violence Prevention and Victim Assistance at (973)353-1918 or email run.vpva@rutgers.edu]

If students who have experienced a temporary condition or injury that is adversely affecting their ability to fully participate, you should submit a request via <https://temporaryconditions.rutgers.edu>.

If you are a military **veteran** or are on active military duty, you can obtain support through the Office of Veteran and Military Programs and Services. <http://veterans.rutgers.edu/>

If you are in need of **mental health** services, please use our readily available services.

[Rutgers University-Newark Counseling Center: <http://counseling.newark.rutgers.edu/>]

[Rutgers Counseling and Psychological Services–New Brunswick: <http://rhscaps.rutgers.edu/>]

If you are in need of **physical health** services, please use our readily available services.

[Rutgers Health Services – Newark: <http://health.newark.rutgers.edu/>]

[Rutgers Health Services – New Brunswick: <http://health.rutgers.edu/>]

If you are in need of **legal** services, please use our readily available services: <http://rusls.rutgers.edu/>

Students experiencing difficulty in courses due to **English as a second language (ESL)** should contact the Program in American Language Studies for supports.

[Rutgers–Newark: PALS@newark.rutgers.edu]

[Rutgers–New Brunswick: eslpals@english.rutgers.edu]

If you are in need of additional *academic assistance*, please use our readily available services.

[Rutgers University-Newark Learning Center: <http://www.ncas.rutgers.edu/rlc>]

[Rutgers University-Newark Writing Center: <http://www.ncas.rutgers.edu/writingcenter>]

[Rutgers University-New Brunswick Learning Center: <https://rlc.rutgers.edu/>]

[Optional items that many faculty include:

- Students must sign, date, and return a statement declaring that they understand the RU Academic Integrity Policy.

- Students must sign, date, and return a statement declaring that they understand this syllabus.]