

Supply Chain Management**Course Number: 29:799:440****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 (NPV),

- 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

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, Newark Industrial Solution Center research) as well as conducting research on behalf of your term project (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)

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 final database should provide thoughtful and detailed coverage of the topics listed below. Only databases 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 Mid-Term Presentations: **Everyone or Team (TBD)** will give a mid-term update ((mins). 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 will **lose 1 point for each second past the (2)-minute limit**).

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; I will provide the key topics that you will have to cover. Practice the presentation so you can deliver it in about 2 minutes. Note: I will also accept video presentations (samples will be provided).

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.**

Supply Chain Sustainability Professional Leadership Certification

All students who (1) attend “every” class (100% attendance unless officially excused), (2) contribute and participate in class research projects, (3) complete all assignments, deliverables and items listed in the Grading Criteria and (4) obtain a final course grade of a ‘B’ or higher, will be awarded the Rutgers Business School- Supply Chain Management Sustainability Leadership Professional Certification. We will discuss this during the first two classes of the semester.

Professional Sustainability Business Plan

In addition to obtaining the professional certification, I will also provide the template for each student to develop a sustainability business plan. This is not a requirement of the class but this document can be used to enhance and promote your experience and expertise on this topic; I have encouraged previous students to prepare and maintain this document as a way to enhance their professional experience.

PREREQUISITES

799:301 Introduction to Supply Chain Management (Required)

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

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. *Attendance is not the only criteria for the class participation grade!* 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 () 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.

CLASSROOM CONDUCT

Reading and sending emails, completing work for other courses while in class, playing games, or any other multi-tasking type activity, is not an appropriate use of the learning opportunity available in class. Cell phones should be turned off prior to class.

GRADING POLICY

Course grades are determined as follows:

Grading Criteria

Class Participation	15%	(Includes Exercises)
Research Project	30%	
Assignments	15%	
Midterm Project Report	15%	
<u>Final Project Examination</u>	<u>25%</u>	
Total:	100%	

Grade Scale:

A = 89.5-100

B+ = 84.5-

89.49

B = 79.5-84.49

C+ = 74.5-

79.49

C = 69.5-74.49

D = 59.5-69.49

F = 0-59.49

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 your final course score by 5 percentage points if you arrange for a speaker to come to class to discuss one of the following (and how these topics impact environmental issues): 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 if and when the guest lecture will take place. This will be done on a first-come, first-served basis, and only three talks can be scheduled per semester.

Grade posting: Grades will be posted throughout the semester in Canvas within () days of 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 in an effort 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 • Newark 2020 Industrial Solution Center; Environmental Management System, and Corporate Social Environmental Reporting for Newark • African Sustainable Supply Chains; Mandela Washington Fellowship Projects; Corporation 	<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); Materials Coding for GHG TIMES-MARKAL</p>	<p>Identify and Record Product: Survey Monkey Link (TBD)</p>	
	<p>Overview of Supply Chain</p>		<p><i>Term Project Groups</i></p>

3	Archaeology; Archaeology; Digs <i>Waste Management and SpecFuel</i>		<i>Identified</i> Identify Product Ionkey (TBD)
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4	Carbon Footprinting (Assignment #1 Issued) African Sustainable Development; Mandela Washington Fellowship; Corporation		
5	Using Systems Thinking Analysis in Supply Chain Management and Procurement <i>Life-Cycle Analysis Overview</i> Design for Environment (DfEandE)		Research Project Discussion
6	Green Product and Packaging Standards Sustainable Fashion Analytics		Carbon Footprint Assignment #1 Due
7	Sourcing and LCA Class Exercise		Class Exercise (Supply Chain Sourcing and LCA Impacts)
8	Newark 2020 Anchor Institution Newark Urban Agriculture Project		In-Class Hackathon (Participation)
9	Global Health – Climate Change and Developing Disaster Response Supply Chains		In-Class Hackathon

			(Participation)
10	Green Building Design and Operations		Submit a draft of your research database
11	Global Strategic Sourcing and Sustainability (Assignment #2 - RFX, Contracts-Assignment Issued)		
12	Lanai Sustainable Island Project (Lanai Assignment #3 Issued)		
13	Environmental Management System (ISO 14000)		Sustainability IT RFP Assignment #2 Due

	Corporate Social Responsibility (ISO 26000)		
14	Lecture and MIDTERM PROJECT REVIEWS		Mid-Term Presentation Updates
15	Small Manufacturer Presentation (Gambert Shirts)		
	NO CLASS		

16	Energy and Energy Innovation		Lanai Database Assignment #3 Due
17	Smart' Design: Greening the Total Product System		
18	Supply Chain Traceability – Sourcing to Improve Climate Change	<i>Years of Living Dangerously</i> 7:50, 21:23, 34:29, 46:00	
19	Alternate Fuel Strategies and Next Generation Vehicles Transportation Sector (Greening Logistics)		Alternative Vehicle Exercise
20	Green Supply-Chain Management & Advanced Nano and Technology		
21	Greening Healthcare (Hackensack-Meridian Health Presentation)		
22	Carbon Footprints and Climate Risk		<i>Carbon Footprints Revisited</i>
23	Multi-sector Sustainability Leadership (Business Roundtable, Dow Jones Sustainability Index)		
24	Climate Change Policy (US, China, India ... Next Industrial Revolution)		
25	Team Research Project Work; Final Assignment Work		

26	Team Research Project Work; Final Assignment Work		Final Database Reviews
27	Lecture; Sustainability Business Plan		
28	Lecture		Last Physical Class
	TERM DATABASE and FINAL EXAM DUE		NLT The Last Day of Exams ()

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.]