

# SYLLABUS

## SUMA PS5170: Sustainable Operations

**Spring 2023 - Mondays, 6:10 to 8:00 p.m.**

### **Instructor information**

Shaun A. Hoyte

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**Office Hours:** by appointment

### **Faculty Support Assistants (Office Hours to be announced):**

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### **Course Overview**

Leading and advancing sustainability within an organization's operations requires a strategic and balanced approach. Focusing on the integration of a broad range of today's sustainability drivers, in a manner consistent with the organization's culture and business objectives, optimizes the chances for long term success. To that end, this course takes a broad high-level approach at systematically analyzing opportunities to integrate sustainability at each step along a complex value chain. Specifically, students will be asked to assume the role of a sustainability professional within a private sector company, tasked with integrating various sustainability strategies, initiatives, and tools into the fabric of the business internally and externally.

Throughout the semester, the entire end-to-end value chain will be examined, however it is not the intent to conduct full in-depth technical analyses of each value chain area, rather we will look at sustainable operations from a high-level strategic management viewpoint, discussing integration opportunities and intersections related to: supply chain, procurement, distribution, direct operations (e.g., manufacturing, buildings), stakeholder engagement, technology use cases and effective useful life disposition.

By considering the organization holistically, we will discuss analytical concepts and industry tools related to systems thinking, cost/benefit analyses, corporate sustainability strategies, and risk assessments. In addition to technical sustainability considerations such as climate change, energy, water and waste, students will learn to implement practical sustainability initiatives within operating organizations by carefully considering key stakeholder expectations and overall implementation. Finally, the intersection of sustainability and brand purpose will be explored, helping to find the sweet spot between sustainability management and creative marketing/communication.

Importantly, students will be challenged to think concretely about making choices and balancing elements of sustainability in an overall business context, and communicate in concise written and oral formats to critical internal and external stakeholders.

## Key Learning Objectives:

Sustainable Operations is a broad topic, applicable to nearly all sectors and organizations both public and private. This course will focus primarily on the private sector, however in order to address as many cross-sector themes as possible, we will look for meaningful operational sustainability elements applicable to most organizations, public and private. The primary learning objectives for students will include:

- Understand how to integrate business-driven Sustainable Operations across a value chain
- Learn to balance and align varying stakeholder (customers/consumers, NGOs, suppliers, employees, and investors) expectations with business realities (both financial and cultural)
- Analyze operational processes and performance, recommending solutions for improvement where necessary
- Gain practical experience in the application of various real-world sustainability tools related to decarbonization, energy efficiency, sustainable buildings, supply chain, and stakeholder engagement
- Understand the opportunities related to developing a Sustainability Strategy Framework and integrating sustainability into an organization's purpose, by leveraging both sustainability management and creative marketing
- Learn to communicate Sustainable Operations implications and business benefits in simple, effective, and authentic ways, and to present clear business-focused updates to executive management

## Course Structure

To help develop practical Sustainable Operations skills, the course will cover multiple case studies from private sector companies including: utilities, hospitality, and food/beverage. Student teams will be given real-world scenarios and data to utilize throughout the course. Team-based midterm and final presentations will be required as a way to share ideas and illicit discussion/debate on various strategies.

The course will be structured into the following main sections: **Business, Stakeholders, and Engagement**

- Business: Understanding Value Chain Impacts: We will begin by examining end-to-end operational aspects of sustainability through the lens of business decisions to help identify potential "hotspots" where focus might bring greatest value. This section will also cover: facility operations & manufacturing, procurement & logistics, and policy. Students will be challenged to complete assignments related to carbon footprint analysis, product sustainability and sustainable buildings (LEED).
- Stakeholders: Focus on Mobilization: Through critical analysis of various internal and external stakeholder (customers/consumers, employees, NGOs, suppliers, and investors) expectations and important business issues, this section will provide the backdrop to formulate successful sustainable operations strategies. Utilizing the private sector organizations assigned, teams will be challenged to complete activities related to designing and developing sustainable solutions, tackle high-impact NGO priorities, assess supply / demand and climate risks, and respond to investor protocols and surveys (e.g., CDP, DJSI, TCFD).
- Engagement: Communication to Drive Action: In this final section of the course, we will focus on developing effective sustainability communications and actions built upon the foundational hotspot and quantifiable issues identified in sections 1 & 2. Student teams will be challenged to develop a sustainability strategy framework, respond to an RFP, and present it along with clear business-focused sustainability goals, key metrics, and messaging, then "tell their story" in the form of Executive Management team presentations.

**GUEST SPEAKERS:** As a way to broaden the real-world aspects of the course, various industry practitioners will be invited to provide the class with their Sustainable Operations experiences and perspectives throughout the semester

### **Course Schedule**

- Week 1 (Jan 23) – Introduction to Sustainable Operations

#### **Section 1: Business: Understanding Systems and Value Chain Impacts**

- Week 2 (Jan 30) – Systems Approach – Assignment
- Week 3 (Feb 6) – Value Chain Footprint – Assignment
- Week 4 (Feb 13) – Facility Operations: Energy & Decarbonization
- Week 5 (Feb 20) – Responsible Sourcing & Supply Chains
- Week 6 (Feb 27) – Sustainable Supply Chain Management
- Week 7 (Mar 6) – MIDTERM: TEAM PRESENTATIONS

#### **Section 2: Stakeholders: Focus on Mobilization**

- Spring Recess (Mar 13) – No class
- Week 8 (Mar 20) - Materiality, Stakeholders & Partnerships
- Week 9 (Mar 27) – Communities Tackling high-impact priorities
- Week 10 (Apr 3) – Environmental, Social and Governance
- Week 11 (Apr 10) – Investors: Surveys and Standards

#### **Section 3: Engagement: Communication to Drive Action**

- Week 12 (Apr 17) - Customers/Consumers: Brand Purpose and beyond
- Week 13 (Apr 24) – Sustainability Strategy and Storytelling
- Week 14 (May 1) – Course Summary & Team Communications
- Week 15 (May 8) – FINAL EXAM: TEAM PRESENTATIONS (note: class from 6:10-9:00 pm) \*

### **Method of Grading and Evaluation**

- 1. Individual Assignments – 60%**
- 2. Discussion Board and Class Participation – 10%**
- 3. Midterm Presentations – 10%**
- 4. Final Exam Presentations – 20%**

Grade Point System: the following identifies how points will be awarded and translated into letter grades for the course, consistent with the SPS program:

### **Course Assignments and Point Scoring**

✓ Individual Assignments (60 points)

Four (4) individual exercises will be assigned to students as follows:

1. Energy Billing Analysis (15 points)
2. GHG Footprint Analysis (15 points)
3. Energy Efficiency Problem Set (15 points)
4. Benchmarking Exercise (15 points)
5. Translation Exercise (5 points) \*

✓ Midterm & Final (30 points)

Two (2) team presentations will be assigned as follows:

1. Midterm Team Presentations: Senior Management briefing on Sustainability Framework (10 points)
2. Final Team Presentations: Sustainable Operations Strategy – RFP Response (20 points)

## **Assignment Grading Criteria**

A series of technical analyses and written management email memos will be assigned throughout the course. Additionally, two team oral presentations will be required.

### *Grading Criteria for Written Assignments:*

- Evaluated on a scale of 100 points using the following guidelines: 20 points for spelling, grammar, and the overall quality and clarity of the writing. 20 points for adherence to assigned format. 60 points for data analysis (where applicable), persuasiveness and effectiveness in communicating all key messages and meeting the objectives of the assignment.

### *Grading Criteria for Verbal Presentations:*

- The midterm and final team presentations will be graded on a scale of 100 points using the following guidelines: 20 points for technical analysis. 30 points for overall quality and clarity of written materials – including ppt slides. 50 points for overall quality and clarity of the verbal presentation – including adherence to format guidelines, delivering within the prescribed time limit, and presentation effectiveness as related to the assigned objectives.

## **Course Readings**

A variety of sources including journal articles, videos, webinars, and websites will be used throughout this course. Documents can be found either on Canvas or electronically. Readings should be completed prior to the appropriate session to help better inform the lecture and discussion.

## **Late Assignment Policy**

Assignments are due on the dates/times identified. One letter grade will be deducted from any assignment submitted after the due date/time. No assignment will be accepted after return of graded results to the class or after in-class review of the assignments, as well as after the deadline for submitting final grades.

## **Incompletes**

As outlined in the School's grading and academic starts policy, "A grade of 'I' (incomplete) is a temporary grade indicating failure to complete assigned work. The mark is given only upon the request of the student and at the discretion of the instructor. The student and faculty member must sign a completed 'Request for Grade of Incomplete Form' before the final class session. The 'I' must be removed within one year after the end of the semester in which the student received the grade. Students seeking an extension of this time limit must have the approval of the instruction and successfully petition of the director of their program. If no petition is made, or if the petition is unsuccessful, the grade is changed to an N-Permanent Incomplete- which remains on the student's permanent record.

## **Academic Integrity**

The School of Continuing Education does not tolerate cheating and/or plagiarism in any form. Those students who violate the Code of Academic and Professional Conduct will be subject to the Dean's Disciplinary Procedures. The Code of Academic and Professional Conduct can be viewed online: <http://ce.columbia.edu/node/217>

Please familiarize yourself with the proper methods of citation and attribution. The School provides some useful resources online; we strongly encourage you to familiarize yourself with these various styles before conducting your research: <http://library.columbia.edu/help/howto/endnote.html>  
Violations of the Code of Academic and Professional Conduct will be reported to the Associate Dean for Student Affairs.

## Accessibility Statement

Columbia is committed to providing equal access to qualified students with documented disabilities. A student's disability status and reasonable accommodations are individually determined based upon disability documentation and related information gathered through the intake process. For more information regarding this service, please visit the University's Health Services website: <http://health.columbia.edu/services/ods/support>.

## ❖ Course Schedule Details

### Week 1: Introduction to Sustainable Operations

The first class will be dedicated to personal introductions, discussing course approach & objectives, aligning expectations and previewing course materials & assignments.

#### This Week's Objectives:

- Provide an overview of the Sustainable Operations course, schedule, and approach.
- Align on class objectives, course structure, and grading
- Review business sectors & course assignments
- Discuss Ray Andersen TED Talk

#### Preparation prior to class:

- **REQUIRED:** TED Talk - The Business Logic of Sustainability; Ray Anderson (Feb 2009); 15:54min [http://www.ted.com/talks/ray\\_anderson\\_on\\_the\\_business\\_logic\\_of\\_sustainability?language=en](http://www.ted.com/talks/ray_anderson_on_the_business_logic_of_sustainability?language=en)

**No Assignment this Week.**

## ❖ Course Section 1 - Business: Understanding Value Chain Impacts

### Week 2: Systems Approach

We will examine end-to-end operational aspects of the energy system through the lens of business. You will discover what energy systems are and gain a fundamental understanding of the energy transition keeping in mind that several approaches may be applied equally to numerous sustainability aspects beyond climate. By the end of this section, students will have a better understanding of the energy chain and energy systems.

- Provide an overview of the disruptive developments that will impact business and form the energy transition
- Determine what defines the energy system and explain the complexity of what drives the energy system (economic layer of the energy transition)
- From energy usage data to smart systems, how businesses should approach sustainability in energy

#### Preparation prior to class:

- **REQUIRED:** Read Grid Ready Report  
[https://www.urbangreencouncil.org/sites/default/files/2021.12.07\\_grid\\_ready.pdf](https://www.urbangreencouncil.org/sites/default/files/2021.12.07_grid_ready.pdf)
- **REQUIRED:** Read Introduction to Systems and Systems Thinking  
<https://www.amnh.org/content/download/329205/5034202/version/1/file/Betley-et-al-2021-Introduction-to-Systems-and-Systems-Thinking.pdf>
- **SUGGESTED: Billing Analysis Review (separate PDF)**

### Individual Assignment #1: Energy Billing Analysis (15 points) due Week 4

This assignment will utilize a set of sample energy bills from various commercial facilities. We will be collecting data from the bills, determining baseline energy consumption, and creating charts to compare energy usage across the facilities on any given day throughout the year. Then, using the tools and resources provided, students will conduct an analysis of the findings.

### Week 3: The Value Chain Footprint

We will examine end-to-end operational aspects of sustainability through the lens of greenhouse gases (GHGs), keeping in mind that this approach may also be applied equally to numerous sustainability aspects beyond climate. This exercise will be highlighting a strategy of identifying potential “hotspots” where focus may bring greatest business and environmental value.

#### This Week’s Objectives:

- Understand the importance of taking a holistic view at an operational footprint (in this case via GHGs) to help identify areas of focus aligned with business goals
- Review how to analyze basic operational energy usage data (e.g., Scope 1 & 2) and convert to GHG emissions
- Appreciate the wide range of impacts associated with end-to-end operational GHGs (e.g., Scope 3 emissions), and gain experience utilizing practical industry approaches and tools (e.g., GHG Protocol, WRI Scope 3 Analyzer, and ENERGY STAR Building Emissions Calculator)

#### Preparation prior to class:

- **REQUIRED:** Read the Endangered Pints Report: <https://www.benjerry.com/whats-new/2016/endangered-pints>
- **SUGGESTED:** Achieving Higher Value Chain Efficiency Through Product Life Cycle Analytics - CoClear (PDF)
- **SUGGESTED:** Review WRI/WBCSD’s *Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* Revised Edition (Introduction and Chapters 1-4)  
<https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf>
- **SUGGESTED:** Review real-world company sustainability reports & corporate websites in the following business sectors (available on company websites, under Sustainability):
  - Consumer Products: Colgate-Palmolive, Procter & Gamble, Unilever
  - Hospitality: Marriott, Wyndham Worldwide, Xanterra
  - Food/Beverage: Pepsico, Coca-Cola, Mondelez

### Individual Assignment #2: GHG Value Chain Footprint (15 points) due Week 5

This assignment will utilize industry accepted practices and tools to develop a topline GHG Footprint analysis for direct (Scope 1), indirect (Scope 2) and other (Scope 3) GHG emissions. Students will use their selected organization's energy usage data and GHG factors provided to estimate the total annual GHG emissions associated with Scope 1 & 2 sources. Then, using the online World Resources Institute (WRI) Scope 3 Evaluator tool students will develop estimated GHG emissions associated with all 15 applicable categories of Scope 3 emissions.

#### **Week 4: Facility Operations - Energy & Decarbonization**

Focus will be on understanding the importance, from both an environmental and economic perspective, of investing in energy reduction & efficiency, and renewable energy projects for your facility operations. Additionally, we will explore both technical and marketing opportunities related to operational decarbonization, green building strategies.

#### **This Week's Objectives:**

- To underscore the criticality of energy efficiency to Sustainable Operations
- Learn strategies to leverage cost to drive energy efficiency and renewable energy projects within an organization's typical ROI
- Explore the buzzword "decarbonization" as a strategic value driver
- Analyze innovative strategies for Sustainable Operations

#### **Preparation prior to class:**

- **REQUIRED:** Unlocking Energy Efficiency in the U.S. Economy – Executive Summary (PDF)
- **SUGGESTED:** Browse through ACEEE Summer Study Proceedings [2022 ACEEE Summer Study on Energy Efficiency in Buildings \(conferencespot.org\)](https://www.aceee.org/summer-study-2022)
- **SUGGESTED:** Visit US EPA ENERGY STAR website – Energy Strategies for Buildings & Plants <http://www.energystar.gov/buildings>; and US EPA ENERGY STAR Energy Treasure Hunt Guide [http://www.energystar.gov/sites/default/files/buildings/tools/Energy\\_Treasure\\_Hunt\\_Guide\\_Jan2014.pdf](http://www.energystar.gov/sites/default/files/buildings/tools/Energy_Treasure_Hunt_Guide_Jan2014.pdf)

#### **Individual Assignment #3: Energy Efficiency Problem Set (15 points) due Week 6**

This assignment will have students prepare a case for a corporate campus e.g., (Pepsi, Colgate or an Industrial Park with multiple Small and Medium Businesses within) looking to replace existing heating and cooling systems. The students will be asked to calculate savings and incentives for the installation of ASHP, GSHP, or a new room AC and boiler/baseboard heater. Students will compare savings, costs, incentives, and payback while making a recommendation for the Client.

#### **Team Assignment #1: MIDTERM TEAM PRESENTATIONS – Sustainability Framework: Senior Management Briefing (10 points) due Week 7**

Each of the teams will prepare and present a 15-minute Senior Management briefing summarizing their Value Chain GHG Footprint findings, peer benchmarking observations, and recommendations related to sustainable operations areas of focus which would bring greatest business value. The presentations will be followed by a 5-minute question/answer session.

## Week 5: Responsible Sourcing & Supply Chains

Organizations engaged in sustainability must think and act beyond the walls of their own operations. During this session, we will examine and discuss how approaches to sustainability (both weak and strong) lead to different strategies and opportunities related to suppliers and organizations.

### This Week's Objectives:

- Discuss the business importance, risks, opportunities, strategies, and practicalities of engaging suppliers in sustainability
- Determine how and when sustainability should be introduced into the supply chain
- Examine CDP Supply Chain as a leading model to engage suppliers

### Preparation prior to class:

- **REQUIRED:** Read McKinsey Article - "Starting at the source: Sustainability in Supply Chains" <https://www.mckinsey.com/business-functions/sustainability/our-insights/starting-at-the-source-sustainability-in-supply-chains>
- **SUGGESTED:** Visit CDP Supply Chain website - <https://www.cdp.net/supplychain>

## Week 6: Sustainable Supply Chain Management – Logistics

During this session, we will examine and discuss sustainable transportation, product traceability, green facilities, and green routing. We will also discuss how companies can boost their climate impact by engaging suppliers to create a net-zero supply chain.

### This Week's Objectives:

- Examine fast-shipping e-commerce strategies and the environmental implications within the supply chain
- Observe best practices and identify how business decisions determine how sustainability develops in an organization's supply chain
- The trade-offs between CO2 emissions and costs when locating facilities

### Preparation prior to class:

- **REQUIRED:** Read Forbes article - "Companies Look To Supply Chains For Sustainability Gains" [Companies Look To Supply Chains For Sustainability Gains \(forbes.com\)](https://www.forbes.com/sites/forbes/2020/05/12/companies-look-to-supply-chains-for-sustainability-gains/)
- **REQUIRED:** Read CNET article - "Amazon Prime two-day shipping drops down to one day" [Amazon Prime two-day shipping drops down to one day - CNET](https://www.cnet.com/news/amazon-prime-two-day-shipping-drops-down-to-one-day/)
- **SUGGESTED:** Visit EPA website - [Green Infrastructure Modeling Toolkit | US EPA](https://www.epa.gov/green-infrastructure-modeling-toolkit)

**No Assignment this Week.**

## Week 7: MIDTERM TEAM PRESENTATIONS - Value Chain Analysis: Senior Management Briefing

Organizations engaged in sustainability must think and act beyond the walls of their own operations. During this session, we will examine and discuss how approaches to sustainability (both weak and strong) lead to different strategies and opportunities related to suppliers and organizations.



**Note:** The Senior Management team has allotted only 15 minutes on their agenda for your briefing. Your presentations will be timed, and the 15-minute limit will be strictly enforced, so not completing your presentation within the time limit will impact your grading evaluation.

**No Assignment this Week.**

## ❖ Course Section 2: Stakeholders - Focus on Mobilization

### **Week 8: Materiality, Stakeholders & Partnerships**

Following our analysis of the value chain in Section 1 of the course, we begin Section 2 with a focus on mobilization and understanding material issues as well as key stakeholder agendas and expectations. Material issues have potentially significant implications related to a company's risk & opportunities, making them critical elements for decision making, strategy setting and reporting. We will examine some approaches to materiality assessments and begin to integrate insights into our company strategies.

#### **This Week's Objectives:**

- Transition from evaluating our footprints to understanding what issues are material to stakeholders both internally and externally
- Discuss Stakeholder Mobilization within the context of understanding expectations and balancing with business realities and requirements
- Discuss various approaches to Materiality Assessments (GRI, SASB)

#### **Preparation prior to class:**

- **REQUIRED:** Read Triple Pundit - "The Business Benefits of Sustainability Partnerships" <https://www.triplepundit.com/story/2018/business-benefits-sustainability-partnerships/13476>
- **SUGGESTED:** Review SASB Materiality Map <https://www.sasb.org/materiality/sasb-materiality-map/>

#### **Individual Assignment #4: Benchmarking Exercise (15 points) due Week 10**

Benchmarking is a practical way to analyze procedures, statistics, products, and services in a related environment – those of a competitor, partner, or another department of the same organization. Its primary purpose is to provide avenues for improvement in private, government and non-governmental organizations. For this assignment, students will improve their selected organizations processes by applying benchmarking best practices to assess performance gaps according to benchmarked data, then summarize the findings with relevant graphs/tables and recommendations

### **Week 9: Communities - Tackling High-impact Priorities (Panel Discussion - Hunts Point Produce Market)**

Companies today engage with an increasing array of key stakeholders dedicated to driving various sustainability agendas. This week, we will do a deep dive into a case study and see how multiple organizations can come together to lead to real, meaningful change in communities. We will examine the business connections to the value chain and discuss partnership engagement and mobilization strategies.

#### **This Week's Objectives:**

- Understand the roles that NGOs, Public, and Private organizations can play in driving Sustainable Operations
- Through examination of our value chain model, discuss which issues are most relevant to Sustainable Operations
- Discuss various strategies in balancing stakeholder engagement with overall business risks & goals

**Preparation prior to class:**

- *Confidential case study materials will be provided prior to the session.*

**No Assignment this Week.**

**Week 10: Environmental, Social and Governance (ESG)**

ESG issues have become a key topic of conversation, and stakeholders play an integral part in structuring the sustainability challenge in a way that it becomes more manageable for government policy. In this section, we will analyze the key strategy areas to strengthen sustainability in business – focusing on legislation and tools developed by key stakeholders to guide businesses through the process.

**This Week's Objectives:**

- Understand the environmental aspects of ESG, and their effect on climate change, natural resources, pollution and waste, energy consumption, the circular economy, and biodiversity
- Examine how businesses can create a strategy to tackle them
- Discuss the impact of the issues on the business and its financial performance, and the impact of the business itself on these issues

**Preparation prior to class:**

- **REQUIRED:** Read “2022: A Tumultuous Year in ESG and Sustainability” <https://hbr.org/2022/12/2022-a-tumultuous-year-in-esg-and-sustainability>
- **SUGGESTED:** Read “Demystifying ESG: Its History & Current Status” [Demystifying ESG: Its History & Current Status \(forbes.com\)](#)

**No Assignment this Week.**

**Week 11: Investors – Surveys & Standards**

As sustainability becomes more deeply embedded into global business practices, the investment community is taking an increasingly active role. This week we will discuss how sustainable operations intersect with investor and shareholder expectations both from risk management and value creation perspectives. We will review some leading investor-facing initiatives (e.g., TCFD), surveys (e.g., CDP, DJSI) and emerging sustainability accounting standards (e.g., SASB) to help frame the discussion.

### This Week's Objectives:

- Understand how investors view sustainability from both the risk management and value creation perspectives
- Through review of the CDP investor initiatives, gain an understanding of the breadth and depth of issues related to how institutional investors may act to reduce the long-term risks arising from environmental and social externalities
- Discuss investors as key stakeholders in driving sustainability, as well as how emerging accounting standards help to provide critical governance and support

### Preparation prior to class:

- **REQUIRED:** View TED talk *The Investment Logic for Sustainability* 12:19min [http://www.ted.com/talks/chris\\_mcknett\\_the\\_investment\\_logic\\_for\\_sustainability?language=en](http://www.ted.com/talks/chris_mcknett_the_investment_logic_for_sustainability?language=en)
- **SUGGESTED:** Read Blackrock letter *A Sense of Purpose* <https://www.blackrock.com/corporate/investor-relations/larry-fink-ceo-letter>
- **SUGGESTED:** View video WSJ and SASB Founder interview 3:53min <http://www.sasb.org/economics-puts-spotlight-sasb/>
- **SUGGESTED:** Visit website: Sustainability Accounting Standards Board (SASB) website – Principles; <http://www.sasb.org/approach/principles/>

### Team Assignment #2: FINAL TEAM PRESENTATIONS – Sustainable Operations RFP Response due Week 15 (Submit PPT/Slides files on Friday Week 14 by 6pm, present to class on Monday Week 15)

As a more comprehensive follow-up to the executive briefing conducted in Week 7, each team will present a 20-minute Senior Management update on the RFP response, summarizing their Sustainable Operations strategy, findings, and recommendations, followed by a 5-minute question/answer session. With the limited amount of time, teams should focus their presentations on high-level learnings, strengths, opportunities and recommendations from the Business, Stakeholders and Engagement work conducted this semester. The audience includes your organization's CEO and COO, as well as management team leaders from finance, procurement, manufacturing/operations, human resources, corporate communications, and sustainability.

## ❖ Course Section 3: Engagement - Communication to Drive Action

### Week 12: Customers/Consumers - Brand Purpose and beyond

This week we will listen to what our customers and consumers are telling us about sustainability in terms of expectations and relevance, and discuss how best to integrate those in balance with other business drivers. Additionally, we will explore the connections and opportunities related to integrating sustainability into a brand's purpose.

### This Week's Objectives:

- Utilize the GHG Footprint developed in Section 1 to examine the impacts stemming from Consumer Use of Products/Service
- Discuss customer perspectives and related engagement strategies
- Explore approaches to integrate sustainability into Brand Purpose Models

### Preparation prior to class:

- **SUGGESTED:** Retail Dive - Why Wal-Mart is a retail sustainability leader (but doesn't really want to talk about it) <https://www.retaildive.com/news/why-wal-mart-is-a-retail-sustainability-leader-but-doesnt-really-want-to/423713/>

- **SUGGESTED:** 5 Amazing Examples of Brands Purpose  
<https://www.huffingtonpost.com/jeff-charles/5-amazing-examples-of-brands-purpose>
- **SUGGESTED:** Practicing Purpose: How to Turn Social Purpose Into Growth  
<https://sustainablebrands.com/read/walking-the-talk/practicing-purpose-how-to-turn-social-purpose-into-growth>

### Individual Assignment #5: Translation Exercise (5 points) due Week 14

In this assignment you will be asked to review a technical write up of a sustainability initiative, program, or process, then translate it into a summary that someone with no experience in this field can understand. Communicating across diverse audiences is a skillset that is earned through understanding and practice. Be creative, have fun, and tell your story.

### Week 13: Sustainability Strategy & Storytelling

As organizations work to develop sustainability strategies and initiatives, utilizing comprehensive frameworks and models can help ensure robust future-proof outcomes. This week we will discuss examples of sustainability strategic models, public reporting, and the importance of meaningful, authentic, and transparent brand messaging and storytelling.

#### This Week's Objectives:

- Appreciate the importance of and transparent public sustainability reporting
- Discuss how to develop a robust sustainability strategy framework
- Look at examples of sustainability marketing done right, and not so right

#### Preparation prior to class:

- **REQUIRED:** Read "Your 2030 Sustainability Targets Are Wrong"  
<https://www.forbes.com/sites/solitairerownsend/2020/06/07/your-2030-sustainability-targets-are-wrong/?sh=57224a37538c>
- **SUGGESTED:** "The Right Way for Companies to Publicize Their Social Responsibility Efforts" – Harvard Business Review  
<https://hbr.org/2018/04/the-right-way-for-companies-to-publicize-their-social-responsibility-efforts>
- **SUGGESTED:** website <https://sustainablebrands.com/>

### Week 14: Course Summary & Team Communications - Sustainable Operations

This class will be dedicated to summarizing key topics and learnings from the course, reviewing original objectives, and having an open class discussion on a selected sustainability "hot" topic and/or case study

Time will be provided for the teams to work on their final presentations, as well as gather input from the professor and teaching assistant as teams prepare for their presentations next week.

#### This Week's Objectives:

- Conduct a course overview focused on the original objectives, as well as key learnings
- Open class discussion on a sustainability "hot" topic or case study (based on student survey)

- Discuss expectations for Final Presentations next week, and provide time for Teams to meet in class to prepare, as needed

**No Assignment this Week.**

# SYLLABUS

## SUMA PS5170: Sustainable Operations

**Fall 2023 - Thursdays, 6:10 to 8:00 p.m.**

**Room: Hamilton 503**

### **Instructor information**

Vance A. Merolla

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**Office Hours:** by appointment

### **Teaching Assistants (TAs) - Office Hours to be announced:**

Maria Camila Jaramillo Arroyave

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### **Course Overview**

Leading and advancing sustainability within an organization's operations requires a strategic and balanced approach. Focusing on the integration of a wide range of today's sustainability drivers, in a manner consistent with the organization's culture and business objectives, optimizes the chances for long term success and impact. To that end, this course takes a broad high level approach at systematically analyzing both risks & opportunities to integrate sustainability at each step along a complex value chain. Specifically, students will be asked to assume the role of a sustainability professional within a private sector company, tasked with integrating various sustainability strategies, initiatives and tools into the fabric of the business.

Throughout the semester, the entire end-to-end value chain will be examined, however it is not the intent to conduct full in-depth technical analyses of each value chain area, rather we will look at sustainable operations from a high-level strategic management viewpoint, discussing integration opportunities and intersections related to: product design, procurement, logistics, physical operations, stakeholder engagement, product/service use and end-of-life disposition.

By considering the organization holistically, we will discuss analytical concepts and industry tools related to life cycle thinking, cost/benefit analyses, corporate sustainability strategies, and risk assessments. In addition to technical sustainability considerations such as climate change, energy, water and waste, students will learn to implement practical sustainability initiatives within operating organizations by carefully considering key stakeholder expectations and overall materiality. Finally, the intersection of sustainability and brand purpose will be explored, helping to find the sweet spot between sustainability science and creative/marketing communication.

Importantly, students will be challenged to think concretely about making choices and balancing elements of sustainability in an overall business context, and communicate in concise written and oral formats to critical internal and external stakeholders.

### **Key Learning Objectives:**

Sustainable Operations is a broad topic, applicable to nearly all sectors and organizations both public and private. This course will focus primarily on the private sector, however in order to address as many cross-sector themes as possible, we will look for meaningful operational sustainability elements applicable to most organizations, public and private. The primary learning objectives for students will include:

- Understand how to integrate business-driven Sustainable Operations across a value chain
- Learn to balance and align varying stakeholders (customers/consumers, NGOs, suppliers, employees and investors) expectations with business realities (both financial and cultural) and materiality
- Utilize life cycle thinking to prioritize sustainability efforts
- Gain practical experience in the application of various real-world sustainability tools related to carbon footprint analysis, energy efficiency, product sustainability, sustainable buildings, water risks and supplier engagement
- Understand the opportunities related to developing a Sustainability Strategy Framework and integrating sustainability into an organization's or brand's purpose, by leveraging both sustainability science and creative marketing
- Learn to communicate Sustainable Operations implications and business benefits in simple, effective and authentic ways, and to present clear business-focused updates to executive management

### **Course Structure**

As a way to help develop practical Sustainable Operations skills, the course will utilize three (3) distinct (fictional) private sector companies in the following business sectors: consumer goods, hospitality and food/beverage. Student teams will be assigned to one of these business sectors, and will be given real-world scenarios and data to utilize throughout the course. Team-based midterm and final presentations will be required as a way to share ideas and illicit discussion/debate on various strategies.

The course will be structured into the following main sections: **Science, Stakeholders, and Engagement**

- Science: Understanding Value Chain Impacts: We will begin by examining end-to-end operational aspects of sustainability through the lens of greenhouse gasses (GHGs), to help identify potential "hotspots" where focus might bring greatest value. This section will also cover: facility operations & manufacturing, procurement & logistics, and product use & end-of-life. Students will be challenged to complete assignments related to carbon footprint analysis, product sustainability and sustainable buildings (LEED).
- Stakeholders: Focus on Materiality: Through critical analysis of various internal and external stakeholder (customers/consumers, employees, NGOs, suppliers, and investors) expectations and material business issues, this section will provide the backdrop to formulate successful sustainable operations strategies. Utilizing the private sector organizations assigned, teams will

be challenged to complete activities related to designing and developing more sustainable products, tackle high-impact NGO priorities, assess supplier water and climate risks (using WRI tools), and respond to investor ESG reporting frameworks and surveys (e.g. CDP, TCFD, SASB).

- **Engagement: Communication to Drive Action:** In this final section of the course, we will focus on developing effective sustainability communications and actions built upon the foundational hotspot and material issues identified in sections 1 & 2. Student teams will be challenged to develop a sustainability strategy framework and present it along with clear business-focused sustainability goals, key metrics, and messaging, then “tell their story” in the form of Executive Management team presentations.

**GUEST SPEAKERS:** As a way to enhance the real-world aspects of the course, various industry practitioners will be invited to provide the class with their Sustainable Operations experiences and perspectives throughout the semester

### Course Schedule

- Week 1 (Sept 7) – Introduction to Sustainable Operations

#### Section 1: Science: Understanding Value Chain Impacts

- Week 2 (Sept 14) – The Value Chain Footprint
- Week 3 (Sept 21) – Facility Operations: Net Zero Mindset
- Week 4 (Sept 28) – Packaging, Product Use and Circularity
- Week 5 (Oct 5) – Sustainable Sourcing & Supply Chains
- Week 6 (Oct 12) – MIDTERM: TEAM PRESENTATIONS

#### Section 2: Stakeholders: Focus on Materiality

- Week 7 (Oct 19) – Materiality, Stakeholders & Partnerships
- Week 8 (Oct 26) - Investors: Evolving Expectations
- Week 9 (Nov 2) – Suppliers: Engaging on Climate & Water Risks
- Week 10 (Nov 9) – NGOs: Partnering for Impact

#### Section 3: Engagement: Communication to Drive Action

- Week 11 (Nov 16) - Customers/Consumers: Brand Purpose and Beyond
- HOLIDAY (Nov 23) - Thanksgiving (no class)
- Week 12 (Nov 30) – Sustainability Strategy and Storytelling
- Week 13 (Dec 7) – Course Summary & Team Communications
- Week 14 (Dec 14) – FINAL EXAM: TEAM PRESENTATIONS (note: class from 6:10-9:00pm)

### Method of Grading and Evaluation

1. Individual Assignments – 70%
2. Midterm Presentations – 10%
3. Final Exam Presentations – 20%

Grade Point System: the following identifies how points will be awarded and translated into letter grades for the course, consistent with the SPS program:



A+	100%	to 98%
A	< 98%	to 93%
A-	< 93%	to 90%
B+	< 90%	to 87%
B	< 87%	to 83%
B-	< 83%	to 80%
C+	< 80%	to 77%
C	< 77%	to 73%
C-	< 73%	to 70%
D	< 70%	to 60%
F	< 60%	to 0%

### Course Assignments and Point Scoring

#### ✓ Individual Assignments (70 points)

Five (5) individual exercises will be assigned to students as follows:

1. GHG Value Chain Footprint (15 points)
2. LEED Scorecard & TRUE Zero Waste analysis (10 points)
3. Supplier Water Risk Mapping (15 points)
4. Climate Action 100+ Analysis (15 points)
5. Sustainability Strategy Framework (15 points)

#### ✓ Midterm & Final (30 points)

Two (2) team presentations will be assigned as follows:

1. Midterm Team Presentations: Senior Management briefing on Value Chain Analysis (10 points)
2. Final Team Presentations: Sustainable Operations Strategy - Executive Summary (20 points)

### Assignment Grading Criteria

A series of technical analyses and written management email memos will be assigned throughout the course. Additionally, two team oral presentations will be required.

#### *Grading Criteria for Written Assignments:*

- Evaluated on a scale of 100 points using the following guidelines: 20 points for spelling, grammar, and the overall quality and clarity of the writing. 20 points for adherence to the assigned format. 60 points for data analysis (where applicable), persuasiveness and effectiveness in communicating all key messages and meeting the objectives of the assignment.

#### *Grading Criteria for Verbal Presentations:*

- The midterm and final team presentations will be graded on a scale of 100 points using the following guidelines: 20 points for technical analysis. 30 points for overall quality and clarity of written materials – including ppt slides. 50 points for overall quality and clarity of the verbal presentation – including adherence to format guidelines, delivering within the prescribed time limit, and presentation effectiveness as related to the assigned objectives.

### **Course Readings**

A variety of sources including journal articles, videos, webinars and websites will be used throughout this course. If marked as “**Required**”, readings should be completed prior to the appropriate session to help better inform the lecture and discussion. Readings marked as “**Suggested**” are encouraged to help inform the discussions and facilitate learning.

### **Late Assignment Policy**

Assignments are due on the dates/times identified. One letter grade will be deducted from any assignment submitted after the due date/time. No assignment will be accepted after return of graded results to the class or after in-class review of the assignments, as well as after the deadline for submitting final grades.

### **Incompletes**

As outlined in the School’s grading and academic starts policy, “A grade of ‘I’ (incomplete) is a temporary grade indicating failure to complete assigned work. The mark is given only upon the request of the student and at the discretion of the instructor. The student and faculty member must sign a completed ‘Request for Grade of Incomplete Form’ before the final class session. The ‘I’ must be removed within one year after the end of the semester in which the student received the grade. Students seeking an extension of this time limit must have the approval of the instruction and successfully petition of the director of their program. If no petition is made, or if the petition is unsuccessful, the grade is changed to an N-Permanent Incomplete- which remains on the student’s permanent record.

### **Academic Integrity**

The School of Continuing Education does not tolerate cheating and/or plagiarism in any form. Those students who violate the Code of Academic and Professional Conduct will be subject to the Dean’s Disciplinary Procedures. The Code of Academic and Professional Conduct can be viewed online: <http://ce.columbia.edu/node/217>

Please familiarize yourself with the proper methods of citation and attribution. The School provides some useful resources online; we strongly encourage you to familiarize yourself with these various styles before conducting your research: <http://library.columbia.edu/help/howto/endnote.html>

Violations of the Code of Academic and Professional Conduct will be reported to the Associate Dean for Student Affairs.

### **Diversity Statement**

It is our intent that students from all diverse backgrounds and perspectives be well-served by this course, that students’ learning needs be addressed both in and out of class, and that the diversity that the students bring to this class be viewed as a resource, strength and benefit. It is our intent to present materials and activities that are respectful of diversity: gender identity, sexuality, disability, age, socioeconomic status, ethnicity, race, nationality, religion, and culture.

### **Accessibility**

Columbia is committed to providing equal access to qualified students with documented disabilities. A student’s disability status and reasonable accommodations are individually determined based upon disability documentation and related information gathered through the intake process. For more information regarding this service, please visit the University’s Health Services website:

<https://health.columbia.edu/services/ods/support>.

**School Policies and Expectations:**

Accessibility Statement – I want you to succeed in this course. Contact [disability@columbia.edu](mailto:disability@columbia.edu) or <mailto:disability@columbia.edu>; for learning accommodations.

**Names/Pronouns**

You deserve to be addressed in a manner that reflects your identity. You are welcome to tell me your pronoun(s) and/or name (if different from University records) at any time, either in person or via email.

**Discrimination**

We embrace the diversity of gender, gender identity & expression, sex, sexual orientation, race, ethnicity, national origin, age, religion, disability status, family status, socioeconomic background, and other visible and non-visible identities. Columbia University does not tolerate unlawful discrimination, discriminatory harassment, sexual assault, domestic violence, dating violence, stalking, or sexual exploitation and all such conduct is forbidden by Columbia University Policy.

**Duty to Report**

You deserve a University community free from discrimination, harassment, and gender-based misconduct including sexual harassment, sexual assault, domestic and dating violence, stalking, and sexual exploitation. It is therefore University policy to require Columbia faculty and staff to report to EOAA any instance or allegation of prohibited conduct involving any undergraduate or any graduate student that is disclosed to, observed by, or otherwise known to that employee. This requirement to report is in place to help ensure that students are provided appropriate resources and to allow the University to mitigate harm to our community.

**Confidential Resources**

There are confidential resources on campus who do not have a Duty to Report, including:

- \* Sexual Violence Response & Rape Crisis/Anti-Violence Support Center (SVR)
- \* Ombuds Office
- \* Medical Services
- \* University Counseling and Psychological Services
- \* University Pastoral Counseling
- \* Columbia Office of Disability Services

University employees working in a confidential capacity will not report information shared with them.

**Inclusion**

In the M.S. in Sustainability Management program, faculty and staff are committed to the creation and maintenance of “inclusive learning” spaces – classrooms and other places of learning where you will be treated with respect and dignity, and where all individuals are provided equitable opportunity to participate, contribute, and succeed.

All students are welcome regardless of race/ethnicity, gender identities, gender expressions, sexual orientation, socio-economic status, age, disabilities, religion, regional background, Veteran status, citizenship status, nationality and other diverse identities that we each bring to class.

## ❖ Course Schedule Details

### Week 1: Introduction to Sustainable Operations

The first class will be dedicated to personal introductions, discussing course approach & objectives, aligning expectations and previewing course materials & assignments.

#### This Week's Objectives:

- Provide an overview of the Sustainable Operations course and approach
- Align on class objectives, course structure, and grading
- Review business sector organizational profiles & course assignments
- Discuss Ray Andersen TED Talk

#### Preparation prior to class:

- **REQUIRED:** TED Talk - The Business Logic of Sustainability; Ray Anderson (Feb 2009); 15:54min  
[http://www.ted.com/talks/ray\\_anderson\\_on\\_the\\_business\\_logic\\_of\\_sustainability?language=en](http://www.ted.com/talks/ray_anderson_on_the_business_logic_of_sustainability?language=en)
- **SUGGESTED:** Review the three (3) fictitious organizational profiles assigned within the Consumer Goods, Hospitality, and Food/Beverage sectors (.xls files posted on Canvas).

**No Assignment this Week.**

## ❖ Course Section 1 - Science: Understanding Value Chain Impacts

### Week 2: The Value Chain Footprint

We will examine end-to-end operational aspects of sustainability through the lens of greenhouse gasses (GHGs), keeping in mind that this approach may also be applied equally to numerous sustainability aspects beyond climate. This exercise will be highlighting a strategy of identifying potential “hotspots” where focus may bring greatest business and environmental value.

#### This Week’s Objectives:

- Understand the importance of taking a holistic view at an operational footprint (in this case via GHGs) to help identify areas of focus aligned with business goals
- Review how to analyze basic operational energy usage data (e.g. Scope 1 & 2) and convert to GHG emissions
- Appreciate the wide range of impacts associated with end-to-end operational GHGs (e.g. Scope 3 emissions), and gain experience utilizing practical industry approaches and tools.

#### Preparation prior to class:

- **REQUIRED:** Review WRI/WBCSD’s *Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* Revised Edition (pages 8-17)  
<https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf>
- **SUGGESTED:** Review real-world company sustainability reports & corporate websites in the following business sectors (available on company websites, under Sustainability):
  - Consumer Products: Colgate-Palmolive, Procter & Gamble, Unilever
  - Hospitality: Marriott , Wyndham Worldwide, Xanterra
  - Food/Beverage: Pepsico, Coca-Cola, Mondelez

#### Individual Assignment #1: GHG Value Chain Footprint (15 points) due Week 4

This assignment will utilize industry accepted practices and tools to develop a topline GHG Footprint analysis for direct (Scope 1), indirect (Scope 2) and other (Scope 3) GHG emissions. Students will use their assigned organization’s energy usage data and GHG factors provided to estimate the total annual GHG emissions associated with Scope 1 & 2 sources. Then, using additional industry tools students will develop estimated GHG emissions associated with applicable categories of Scope 3 emissions.

### **Week 3: Facility Operations - Net Zero Mindset**

Focus will be on understanding the importance, from both an environmental and economic perspective, of investing in energy reduction & efficiency, and renewable energy projects for your facility operations. We will discuss the SBTi Net Zero Standard as related to Operations. Additionally, we will explore both technical and marketing opportunities related to the USGBC's TRUE Zero Waste and LEED certification programs.

#### **This Week's Objectives:**

- Underscore the criticality of Energy Efficiency to Sustainable Operations
- Review the SBTi Net Zero Standard as it relates to Operations
- Discuss LEED Green Building Certification & TRUE Zero Waste Certification related to a facility in your organization

#### **Preparation prior to class:**

- **REQUIRED:** Read SBTi Net Zero standard (pages 14-20)  
<https://sciencebasedtargets.org/resources/files/Net-Zero-Standard.pdf>
- **REQUIRED:** Read *Why LEED*: <https://www.usgbc.org/leed/why-leed>
- **REQUIRED:** Visit the TRUE Zero Waste Certification guide:  
<https://true.gbci.org/sites/default/files/resources/TRUE%20Precertification%20Guide.pdf>
- **SUGGESTED:** Visit US EPA ENERGY STAR website – Energy Strategies for Buildings & Plants <http://www.energystar.gov/buildings>; and US EPA ENERGY STAR Energy Treasure Hunt Guide [http://www.energystar.gov/sites/default/files/buildings/tools/Energy\\_Treasure\\_Hunt\\_Guide\\_Jan\\_2014.pdf](http://www.energystar.gov/sites/default/files/buildings/tools/Energy_Treasure_Hunt_Guide_Jan_2014.pdf)

#### **Individual Assignment #2: LEED Scorecard & TRUE Zero Waste Analysis due Week 5**

This assignment has students review a preliminary LEED v4 Scorecard and cost estimates from a LEED consultant, and provide recommendations related to sustainable building practice options for a new facility being built in India. Additionally, a basic review of the USGBC's TRUE Zero Waste program and requirements will be included in the analysis and management recommendations.

#### **Team Assignment #1: MIDTERM TEAM PRESENTATIONS – Value Chain Analysis: Senior Management Briefing due Week 6**

Each of the teams will prepare and present a 12-minute Senior Management briefing summarizing their Value Chain GHG Footprint findings, peer benchmarking observations, and recommendations related to sustainable operations areas of focus which would bring greatest business value. The presentations will be followed by a 5-minute question/answer session.

#### **Week 4: Packaging, Product Use and Circularity**

The sustainability impacts stemming from the use and disposal of an organization's products and/or services can often be significant. Product design and material/ingredient choices combined with sourcing decisions and transparency choices affect the overall sustainability profile of an organization. Additionally, this can enable/disable the ability of suppliers, manufacturers, consumers and recycling facilities to reduce their impacts in support of a more circular economy.

#### **This Week's Objectives:**

- Review the results of the GHG Footprint exercise assigned in Week 2 with focus on the Supplier aspects
- Examine product sustainability aspects related to the design, use and disposal of an organization's products and/or services, with a focus on single use plastics

#### **Preparation prior to class:**

- **REQUIRED:** Read Article - CNN: 414 million pieces of plastic found on remote Australian islands <https://www.cnn.com/2019/05/16/asia/australia-plastic-islands-intl/index.html>
- **SUGGESTED:** Read Article - Plastic Monsters (Nestle & Greenpeace) <https://www.greenpeace.org/international/story/21822/plastic-monsters-from-around-the-world-return-home-to-nestle/>
- **SUGGESTED: Anne Bedarf** - recycling video <https://www.youtube.com/watch?v=7pCX--uxiMo>
- **SUGGESTED:**
  - Visit website - Association of Plastic Recyclers <https://plasticsrecycling.org/>
  - Visit website - Closed Loop Fund <http://www.closedloopfund.com/>
  - Visit website – How2Recycle <http://www.how2recycle.info/>
  - Visit website – Sustainable Packaging Coalition <https://sustainablepackaging.org/>

**No Assignments this Week.**

## **Week 5: Sustainable Sourcing & Supply Chains**

Organizations engaged in sustainability must think and act beyond the walls of their own operations. Utilizing the results from the GHG footprint exercise conducted for our organizations, we will examine and discuss the opportunities related to suppliers and materials. In addition, we will discuss the opportunities of Supplier Diversity.

### **This Week's Objectives:**

- Review the LEED Scorecard and TRUE Zero Waste Analysis assignment from Week 3
- Discuss the business importance, risks, opportunities, strategies and practicalities of engaging suppliers in sustainability
- Discuss opportunities related to Supplier Diversity

### **Preparation prior to class:**

- **REQUIRED:** Read Thomasnet article - **“What is Supplier Diversity and Why is it Important?”**  
<https://www.thomasnet.com/articles/other/what-is-supplier-diversity-and-why-is-it-important/#:~:text=Supplier%20diversity%20is%20the%20strategic,equal%20show%20in%20the%20market>
- **REQUIRED:** Read McKinsey Article - **“Starting at the source: Sustainability in supply chains”**  
<https://www.mckinsey.com/business-functions/sustainability/our-insights/starting-at-the-source-sustainability-in-supply-chains>
- **SUGGESTED:** Visit CDP Supply Chain website - <https://www.cdp.net/supplychain>

**No Assignment this Week.**



## **Week 6: MIDTERM TEAM PRESENTATIONS - Value Chain Analysis: Senior Management Briefing**

Each of the 6 teams will present a 12-minute Senior Management briefing summarizing their Value Chain GHG Footprint findings, peer benchmarking observations, and recommendations related to sustainable operations areas of focus which would bring greatest business value. The presentations will be followed by a 5-minute question/answer session.

***Note:** the Senior Management team has allotted only 12 minutes on their agenda for your briefing. Your presentations will be timed and the 12 minute limit will be strictly enforced, so not completing your presentation within the time limit will impact your grading evaluation.*

**No Assignment this Week.**

## ❖ Course Section 2: Stakeholders - Focus on Materiality

### Week 7: Materiality, Stakeholders & Partnerships

Following our analysis of the value chain in Section 1 of the course, we begin Section 2 with a focus on understanding materiality of issues as well as key stakeholder agendas and expectations. Material issues have potentially significant implications related to a company's risk & opportunities, both financial impact and environmental/social impacts, making them critical elements for decision making, strategy setting and reporting. We will examine some approaches to double materiality assessments, reporting frameworks, and begin to integrate insights into our company strategies.

#### This Week's Objectives:

- Transition from evaluating our footprints to understanding what issues are material to stakeholders both internally and externally
- Discuss Stakeholder Engagement within the context of understanding expectations and balancing with business realities and requirements
- Discuss the concept of Double Materiality and related reporting frameworks
- Introduce a real-world tool (World Resources Institute Aqueduct Water Risk Atlas) to help assess material risks related to suppliers

#### Preparation prior to class:

- **REQUIRED:** Read Triple Pundit - "The Business Benefits of Sustainability Partnerships"  
<https://www.triplepundit.com/story/2018/business-benefits-sustainability-partnerships/13476>
- **REQUIRED:** Read PWC - "CSRD - Double Materiality Assessment"  
<https://www.pwc.nl/en/topics/sustainability/esg/corporate-sustainability-reporting-directive/csrd-double-materiality-assessment.html>
- **SUGGESTED:** Read Deloitte - "The Challenge of Double Materiality - Sustainability Reporting at a Crossroad"  
<https://www2.deloitte.com/cn/en/pages/hot-topics/topics/climate-and-sustainability/dcca/thought-leadership/the-challenge-of-double-materiality.html>
- **SUGGESTED:** Review SASB Materiality Map  
<https://www.sasb.org/materiality/sasb-materiality-map/>

#### Individual Assignment #3: Supplier Water Risk Mapping due Week 9

In this assignment, students will utilize WRI's online Aqueduct water risk tool to map out the locations of 3 potential new suppliers in Mexico, obtain water risk data associated with these supplier locations, and then summarize the findings and report back to the Global Procurement team with relevant graphs/tables and recommendations.

## **Week 8: NGOs - Partnering for Impact**

Companies today engage with an increasing array of non-government organizations (NGOs) dedicated to driving various sustainability agendas. This week we will survey the current external NGO landscape, examine the business connections to the value chain, and discuss beneficial NGO engagement strategies.

### **This Week's Objectives:**

- Understand the role of NGOs in driving Sustainable Operations, and survey the current external landscape
- Through examination of our value chain model, discuss which NGO issues are most relevant to Sustainable Operations
- Discuss various strategies in balancing NGO partnership with overall business risks & goals

### **Preparation prior to class:**

- **REQUIRED:** Read Financial Times article - **"P&G urged to match best in class to avoid 'greenwash' label"**  
<https://www.ft.com/content/4f807d17-2f95-4572-a7f4-50655fdda00e?shareType=nongift>
- **SUGGESTED:**
  - Visit World Resources Institute (WRI) website; <http://www.wri.org>
  - Visit Environmental Defense Fund (EDF) website; <https://www.edf.org/>
  - Visit Greenpeace website; <http://www.greenpeace.org/usa/>
  - Visit US Green Building Council (USGBC) website; <http://www.usgbc.org/>

**No Assignment this Week.**

### **Week 9: Suppliers - Assessing Water & Climate Risks**

Sustainable Operations are critically dependent upon understanding and managing the risks throughout the supply chain. This week we will examine approaches to analyzing and addressing water and climate risks associated with key material/service suppliers. In addition, we will discuss the challenges of engaging suppliers in the critical area of Scope 3 emissions and reporting.

#### **This Week's Objectives:**

- Discuss Stakeholder Engagement within the context of how best to partner with suppliers to gather critical input used to inform the assessment of current and future risks
- Understand the criticality of assessing and managing water and climate related risks associated with suppliers
- Discuss the application of a real-world analytical tool (WRI's Aqueduct Water Risk mapping) in the supplier evaluation and selection process

#### **Preparation prior to class:**

- **REQUIRED:** Read Reuters article: **"An ever-drier world will unleash investment flood"**  
<https://www.reuters.com/article/us-global-water-breakingviews/breakingviews-an-ever-drier-world-will-unleash-investment-flood-idUSKBN1Z51MD>
- **SUGGESTED:** Visit WRI Aqueduct website - <http://www.wri.org/our-work/project/aqueduct>
- **SUGGESTED:** Read: NY Times A Quarter of Humanity Faces Looming Water Crises  
<https://www.nytimes.com/interactive/2019/08/06/climate/world-water-stress.html>

## Week 10: Investors - Evolving Expectations

As sustainability becomes more deeply embedded into global business practices, the investment community is taking an increasingly active role. This week we will discuss how sustainable operations intersect with investor and shareholder expectations both from risk management and opportunity creation perspectives. We will review some leading investor-facing climate frameworks, surveys, risk analyses, climate regulations and emerging issues to help frame the discussion.

### This Week's Objectives:

- Understand how investors view sustainability from both the risk management and opportunities creation perspectives
- Discuss investors as key stakeholders in driving sustainability, as well as emerging investor-facing trends, tools and surveys, including TCFD, CA100+, CDP, DJSI, scenario analysis, carbon pricing, US SEC rules, Just Transition, Nature/Biodiversity, etc.

### Preparation prior to class:

- **REQUIRED:** Environmental Justice and Equity - WRI  
<https://connect.wri.org/webmail/120942/1084555045/aa722dfe95d21e2e2f791a099e3aebfbfae0a7b6421dcca5347484bd2d46638a>
- **REQUIRED:** View TED talk *The Investment Logic for Sustainability* 12:19min  
[http://www.ted.com/talks/chris\\_mcknett\\_the\\_investment\\_logic\\_for\\_sustainability?language=en](http://www.ted.com/talks/chris_mcknett_the_investment_logic_for_sustainability?language=en)
- **SUGGESTED:** Carbon Pricing Dashboard - The World Bank  
[https://carbonpricingdashboard.worldbank.org/map\\_data](https://carbonpricingdashboard.worldbank.org/map_data)
- **SUGGESTED:** Understanding the SEC's proposed climate risk disclosure rule - McKinsey  
<https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/understanding-the-secs-proposed-climate-risk-disclosure-rule?cid=podcast-eml-alt-mip-mck&hdpid=34e05383-2b43-4695-b0cd-2945e2988d88&hctky=12299068&hlkid=802a81bb70a745b4b119e65ad351dea8>
- **SUGGESTED:** Read Blackrock letter *A Sense of Purpose* - 2022 letter  
<https://www.blackrock.com/corporate/investor-relations/larry-fink-ceo-letter>  
2023 letter:  
<https://www.blackrock.com/corporate/investor-relations/larry-fink-annual-chairmans-letter>  
GlobeScan analysis of 2023 letter:  
<https://globescan.com/2023/03/30/analysis-larry-finks-annual-letter-ceos-2023/>  
Time Magazine on Larry Fink ESG Backlash  
<https://time.com/6291317/larry-fink-esg-climate-action/>

### Individual Assignment #4: CA100+ Analysis due Week 12

This assignment asks students to perform a gap analysis, sector peer benchmarking and make recommendations related to an unsolicited rating received from Climate Action 100+ (CA100+). Students will reply back to their Chief Investor Relations officer to explain the rating, provide an overall gap analysis across various indicators, sub-indicators and metrics, and make recommendations on how best to take action to address the gaps.

**Team Assignment #2: FINAL TEAM PRESENTATIONS – Sustainable Operations Executive Summary due Week 14**

**(Submit PPT/Slides files on Wednesday Week 14 by 6pm, present to class on Thursday Week 14)**

As a more comprehensive followup to the executive briefing conducted in Week 6, each of the 6 teams will present a 20-minute Senior Management update summarizing their Sustainable Operations strategy, findings and recommendations, followed by a 5-minute question/answer session. With the limited amount of time, teams should focus their presentations on high-level learnings, strengths, opportunities and recommendations from the Science, Stakeholders and Engagement work conducted this semester. The audience includes your organization's CEO and COO, as well as management team leaders from finance, procurement, manufacturing/operations, human resources, corporate communications and sustainability.

## ❖ Course Section 3: Engagement - Communication to Drive Action

### Week 11: Customers/Consumers - Brand Purpose and beyond

This week we will listen to what customers and consumers are telling us about sustainability in terms of expectations and relevance, and discuss how best to integrate those in balance with other business drivers. Additionally, we will explore the connections and opportunities related to integrating sustainability into a brand's purpose.

#### This Week's Objectives:

- Review Assignment #4 on Supplier Water Risk Mapping
- Utilize the GHG Footprint developed in Section 1 to examine the impacts stemming from Consumer Use of Products/Service
- Discuss customer perspectives and related engagement strategies
- Explore approaches to integrate sustainability into Brand Purpose Models

#### Preparation prior to class:

- **REQUIRED:** Greenbiz article - “How to close consumers’ intention-action gap”  
<https://www.greenbiz.com/article/how-close-consumers-intention-action-gap>
- **REQUIRED:** Cargill - FROM SOURCE TO TABLE: Understanding the Sustainable Consumer  
<https://www.cargill.com/doc/1432138927077/understanding-the-sustainable-consumer.pdf>
- **SUGGESTED:** Huff Post - Why is Walmart a Sustainability Leader?  
[https://www.huffpost.com/entry/why-is-walmart-a-sustainability-leader\\_b\\_5a329da5e4b00caf3d59eae8](https://www.huffpost.com/entry/why-is-walmart-a-sustainability-leader_b_5a329da5e4b00caf3d59eae8)
- **SUGGESTED:** 5 Amazing Examples of Brands Purpose  
[https://www.huffingtonpost.com/jeff-charles/5-amazing-examples-of-brands-purpose\\_b\\_10107212.html](https://www.huffingtonpost.com/jeff-charles/5-amazing-examples-of-brands-purpose_b_10107212.html)
- **SUGGESTED:** Practicing Purpose: How to Turn Social Purpose Into Growth  
[https://www.sustainablebrands.com/news\\_and\\_views/walking\\_talk/libby\\_maccarthy/practicing\\_purpose\\_how\\_turn\\_social\\_purpose\\_growth](https://www.sustainablebrands.com/news_and_views/walking_talk/libby_maccarthy/practicing_purpose_how_turn_social_purpose_growth)

#### Individual Assignment #5: Sustainability Strategy Framework due Week 13

In this assignment, you will be asked to develop a Sustainability Strategy framework given a suggested process, format and content. Students will utilize the information provided on the General Company Info tab of their organizational profiles along with perspectives gained from the Science and Stakeholder sections of the course to help inform a meaningful sustainability strategy and positioning. The strategic framework will include a vision, sustainability territory, positioning statement, priority pillars, directional targets/ambitions, and foundational topics. In addition, you will develop a Sustainability Manifesto and strategy “tagline” meant to succinctly summarize the story of your sustainability strategy and ambitions.

## Week 12: Sustainability Strategy & Storytelling

As organizations work to develop sustainability strategies and initiatives, utilizing comprehensive frameworks and models can help ensure robust future-proof outcomes. This week we will discuss examples of sustainability strategic models, public reporting, and the importance of meaningful, authentic and transparent product claims, brand messaging and corporate storytelling.

### This Week's Objectives:

- Appreciate the importance of and transparent public sustainability reporting
- Discuss how to develop a robust sustainability strategy framework
- Look at examples of sustainability marketing done right, and not so right

### Preparation prior to class:

- **REQUIRED:** Bloomberg Law article - “The Legal Risks of Greenwashing”  
[https://news.bloomberglaw.com/environment-and-energy/the-legal-risks-of-greenwashing-are-real?usertype=External&bwid=00000181-f3af-df54-a5f3-ffffc5110001&qid=7327895&cti=SCRP&uc=1320010346&et=NEWSLETTER&emc=blnw\\_nl%3A28&source=newsletter&item=headline&region=digest&access-ticket=eyJjdHh0IjoiTkVWRSIsImkljoiMDAwMDAxODEtZjNhZi1kZiU0LWE1ZjMtZmZmZmM1MTEwMDAxliwic2lnIjoieHBaSVhJSmFTZEN4OUNVQ3Z2RnltbldGUWN3PSIsInRpbWUiOiIxNjU4NzcyOTQ5IiwidXVpZCI6IlhJaDI4MGtNVkp1UVc5VEgzaERhRmc9PWIrU250eTRjVWh5TVpHYUZBbmo5Ync9PSIsInYiOiIxln0%3D](https://news.bloomberglaw.com/environment-and-energy/the-legal-risks-of-greenwashing-are-real?usertype=External&bwid=00000181-f3af-df54-a5f3-ffffc5110001&qid=7327895&cti=SCRP&uc=1320010346&et=NEWSLETTER&emc=blnw_nl%3A28&source=newsletter&item=headline&region=digest&access-ticket=eyJjdHh0IjoiTkVWRSIsImkljoiMDAwMDAxODEtZjNhZi1kZiU0LWE1ZjMtZmZmZmM1MTEwMDAxliwic2lnIjoieHBaSVhJSmFTZEN4OUNVQ3Z2RnltbldGUWN3PSIsInRpbWUiOiIxNjU4NzcyOTQ5IiwidXVpZCI6IlhJaDI4MGtNVkp1UVc5VEgzaERhRmc9PWIrU250eTRjVWh5TVpHYUZBbmo5Ync9PSIsInYiOiIxln0%3D)
- **REQUIRED:** Forbes article - “Your 2030 Sustainability Targets Are Wrong”  
<https://www.forbes.com/sites/solitairetownsend/2020/06/07/your-2030-sustainability-targets-are-wrong/#3bbcbdd5538c>
- **SUGGESTED:** Adweek article - “Unilever Hit With Greenwashing Ad Ban for Vague Environmental Claims”  
[https://www.adweek.com/brand-marketing/unilever-hit-with-greenwashing-ad-ban-for-vague-environmental-claims/?utm\\_source=postup&utm\\_medium=email&utm\\_campaign=Adweek\\_Daily\\_Newsletter\\_220831054621&recip\\_id=1347600&lyt\\_id=1347600](https://www.adweek.com/brand-marketing/unilever-hit-with-greenwashing-ad-ban-for-vague-environmental-claims/?utm_source=postup&utm_medium=email&utm_campaign=Adweek_Daily_Newsletter_220831054621&recip_id=1347600&lyt_id=1347600)
- **SUGGESTED:** *The Right Way for Companies to Publicize Their Social Responsibility Efforts* – Harvard Business Review  
<https://hbr.org/2018/04/the-right-way-for-companies-to-publicize-their-social-responsibility-efforts>
- **SUGGESTED:** website <https://sustainablebrands.com/>



**Week 13: COURSE SUMMARY & TEAM COMMUNICATIONS - Sustainable Operations**

The final class will be dedicated to summarizing key topics and learnings from the course, reviewing original objectives, and having an open class discussion on a selected sustainability “hot” topic and/or case study

Time will also be provided for the teams to work on their final presentations, as well as gather input from the professor and teaching assistants as teams prepare for their presentations next week.

**This Week’s Objectives:**

- Review Assignment #5 Sustainability Strategy Framework
- Conduct a course overview focused on the original objectives, as well as key learnings
- Open class discussion on a sustainability “hot” topic or case study (based on student survey)
- Discuss expectations for Final Presentations next week, and provide time for Teams to meet in class to prepare, as needed

**No Assignment this Week.**

**Week 14: FINAL TEAM PRESENTATIONS - Sustainable Operations Strategy Executive Summary**  
*(\*extended class time from 6:10pm to 9:00pm)*

Each of the 6 teams will present a 20-minute Senior Management update summarizing their Sustainable Operations strategy, findings and recommendations, followed by a 5-minute question/answer session. With the limited amount of time, teams should focus their presentations on high-level learnings, strengths, opportunities and recommendations from the Science, Stakeholders and Engagement work conducted this semester. The audience includes your organization's CEO and COO, as well as management team leaders from finance, procurement, manufacturing/operations, human resources, corporate communications and sustainability.

**Note:** *the Senior Management team has allotted only 20 minutes on their agenda for your briefing. Your presentations will be timed and the 20 minute limit will be strictly enforced, so not completing your presentation within the time limit will impact your overall assignment evaluation.*