OPERATIONS MANAGEMENT SYLLABUS

The Heller School for Social Policy and Management, Brandeis University

HS-258A-1, Spring, 2018

V1.0 (1/8/2018)

Professor Joel Cutcher-Gershenfeld
Office Location: Room 202
Office Hours: Thursdays 2:00-4:00 PM
e-mail: joelcg@brandeis.edu

Class Sessions: Friday 9:00 AM–11:50 AM
Class Location: G2
Prerequisite: Statistics

TA: Tessa Fast
Office hours: Mondays from 12:00-2:00pm (G54)
e-mail: tessafast@brandeis.edu

Program Administrator: Norma DeMattos
ndemat@brandeis.edu, X63866

HBS CoursePack Cases link: http://cb.hbsp.harvard.edu/cbmp/access/72624102

Heller Diversity Pledge: This class operates with a full commitment to all elements of the Heller Diversity Pledge:

- To make Heller a safe and welcoming place for all people.
- To be aware of my own biases against people who are different from me, and to hold myself accountable for my actions and words, even if it is uncomfortable.
- To engage in respectful dialogue and language that is responsible and sensitive to the opinions of others and free of rancor and attack, in and outside the classroom.
- To intentionally and consistently act to address societal inequity and injustice in the broader community.
- Ultimately, I pledge to work for a world in which everyone is free to be who they are and can lead fulfilling lives, without having to overcome discrimination.

Course Aim: Increase your expertise in managing the flow of services and materials in order to better deliver value to diverse stakeholders – implementing and sustaining continuous improvement in operations, including operational improvement associated with social justice.

Course Objectives: At the completion of this course you should be able to:

- Understand the different functions within operations, and evaluate how effectively those elements are designed and integrated within specific operational systems
- Analyze and assess the performance of production and delivery processes, and be able to describe the unique characteristics of service operations
- Conduct a process review, diagnose problems in an operations environment, and formulate solutions for improvement using quantitative analysis
- Apply quality management concepts and tools to a variety of operations
- Appreciate issues of power, diversity, and inclusion in the context of operations and continuous improvement
- Describe how operations activities relate to other functional areas and enterprise strategy

COURSE OVERVIEW

Part I. Introduction

Session 1 **January 12th – Course Introduction and the Operations Mindset**

Part II. Process Flow

Session 2 **January 19th – Process Fundamentals**

Session 3 **January 26th – Capacity, Demand, Work Flow Diagrams, and Value Stream Mapping**

- *Field project proposal due*

Session 4 **February 2nd – Process Flow and Inventory Analysis in Service Operations**

Part III. Process Improvement

Session 5 **February 9th – Quality Principles, Statistical Process Control and Six Sigma**

Session 6 **February 16th – Policy Deployment (Hoshin Konri) and Performance Metrics**

- *First written case analysis due*

February 23rd – No class

Session 7 **March 2nd – Continuous Process Improvement (Kaizen) and Quality Operating Systems**

Part IV. Systems Operations

Session 8 **March 9th – Cross-Functional Coordination Enabling Operations**

- *2+2 pairing of teams for field projects*

Session 9 **March 16th – Operations in Developing Countries**

Session 10 **March 23rd – Supply Chain Management and Data Analytics**

- *Second written case analysis due*

Part V. New Frontiers

March 30th and April 6th – No class

Session 11 **April 13th – Systems Transformation**

Session 12 **April 20th – Social Protest Operations**

Session 13 **Wednesday, April 25th (Brandeis Day) – Concluding Presentations**

- *Field projects due (sides at 1:00 the day before class; papers at 1:00 on the Monday after class)*

Course Description:*

Operations involve a sequence of activities organized for the purpose of making and delivering a product or service. This course prepares you to analyze, design, manage and improve operational work processes in social mission-driven organizations to meet the needs of clients, while engaging both staff, volunteers, and clients in achieving the mission. We explore ways to achieve quality outcomes without sacrificing efficiency and vice versa, given the resource constraints faced by many mission-driven organizations.

You will develop skills including quality assessment, process mapping, productivity analysis, process improvement by employing quality management techniques, capacity management analysis, customization versus standardization of work processes, balancing supply and demand, coordination of process elements, stakeholder alignment within operations and across other organizational functions. We will use a series of cases, articles, exercises, guest speakers and online simulations. Cases will be drawn from both product and service operations. Emphasis will be placed on hands-on learning where possible, and case analyses and recommendations will focus on practical, action-oriented management steps to achieve desired outcomes, using evidence available. Two written case analyses will be completed during the term.

To practice the application of concepts discussed in this course, you will conduct a process analysis and design project in a real-world setting. Groups of students will form teams, and then choose an organization and a work process to focus on within that organization. Through direct observations and interviews, student teams will map out their chosen work process. They will then analyze the work process, assessing how efficiently resources are used, and how effectively the process works for customers. Teams will make recommendations for process improvement, with specific actions and expected outcomes as a result of those changes. In-class team presentations and a final report will complete the deliverables.

Class participation is essential for this course so that we can take advantage of the experience and insights of class members. We want to explore how, why, and under what circumstances various approaches to operations management are effective or ineffective. Students' previous experiences, both positive and negative, are a valuable source of data for this learning. Class participation also gives students the opportunity to develop an important management skill – articulating a point of view to one's colleagues for the purpose of learning and decision-making.

Course Requirements: You must demonstrate the ability to apply concepts and techniques for designing, analyzing and improving operations. Performance will be assessed as shown below:

Two Written Case Analyses	20 points each x 2 = 40 points	First case due Session 6 and second due Session 9
Field Process Analysis Presentation	10 points	Slides due at 1:00, the day before Session 13
Field Process Analysis Paper	30 points	Paper due at 1:00, the Monday after Session 13
Class Participation	20 points	All sessions but the first and last
Total	100 points	

* *Portions of this syllabus are adapted from an earlier version of the course by Heller Professor Jody Hoffer Gittell.*

You are expected to be proficient in the use of Microsoft Excel for quantitative analysis, PowerPoint for presentations, and Word (or equivalent software) for written work.

Case Analyses. You will be asked to submit written analyses of two specific cases during the semester. Case analyses are due at the beginning of the class in which the case will be discussed. You will be asked to take the role of a protagonist in each case. The assignment will specify the operations questions to be addressed. You should work independently on this assignment.

Each case write-up will be a 2 to 3-page **business memo**, summarizing the findings from your analysis, the choices facing the organization, and your specific, practical recommendations for action on the issues involved. Citations to reference material should be integrated into the text of your memo in the way you would do so in an organizational setting. This includes references to material from books, articles, and internet sources. A full set of citations should be included on a separate page at the end and is not part of page count.

The rubric for grading a case analysis is as follows:

Crisp executive summary	30%
Analysis of choices facing the organization (using course concepts)	40%
Specific practice recommendations	20%
Creativity and innovation in the analysis	10%
Total:	100% or 20 points

Class Participation. Class participation grades reflect my assessment of your total contribution to the learning environment. This reflects not only the frequency of your contributions in class, but also their quality (ability to draw on course materials and your own experience productively, ability to advance or sharpen in-class discussion and debate, willingness to take risky or unpopular points of view, use of logic, precision and evidence in making arguments), and the professionalism of your conduct (attendance, punctuality, preparedness, and showing respect to all class members and their class contributions).

Attendance. You are expected to attend all classes and be punctual for class start times. If you cannot be present or will be late or need to leave early, please notify me in writing as soon as possible. Missing more than one class will affect your participation grade.

If you must miss a class (or will be late), please advise me in advance by email. If you receive an excused absence, you can still get partial credit by writing a one-page paper on lessons learned based on the readings for that week and interviews with three students who were in class. That paper is due within five days after the class.

Process Analysis Team Project. You will be asked to form a team of 2 to 3 students in the second week of the term. Your team will choose one particular work process in an organization you have access to and can directly observe the operational activities. You will map the process using a work flow diagram or value stream map, analyze it, and provide recommendations for improving it, as well as provide anticipated costs and benefits resulting from those actions.

Half-way through the term you will be paired with a team working in a similar sector to compare/contrast the findings. The final written report and the final presentations will be by the combined teams.

You will be expected to utilize whatever concepts, tools and techniques from the course are relevant to that specific situation when making your analysis and recommendations. Here are the key milestones for this assignment:

Proposal due (team members, topic, organization)	Session 3
Field data collection and literature review	(out of class during Sessions 4-7)
Pairing of teams	Session 8
Combined presentation (paired teams)	Session 13

Your projects will be evaluated based on how well you observe and analyze each work processes, how insightful your recommendations are for improving each work process, how effectively the recommendations are linked to your analysis, and how well you integrate lessons across the two settings. In general, analysis and presentations should take into account all elements of the DMAIC model: Define, Measure, Analyze, Improve, Control (DMAIC).

Presentations are limited to no more than 8 powerpoint slides (not counting the cover slide) and should inform the class on each project (3 slides each), as well as the lessons from comparing and contrasting them (2 slides). Citations to reference material should be integrated into the text of your analysis in the way you would do so in an organizational setting. This includes references to material from books, articles, and internet sources. A full set of citations should be included on a separate page at the end as part of academic integrity and is not part of page count.

The rubric for grading the process analysis is as follows:

Executive summary	10%
Define the problem	10%
Measure the key elements of the problem	15%
Analyze the data (using additional sources as appropriate)	20%
Improvement recommendations – social and technical	15%
Control plan – social and technical	10%
Creativity and innovation in the analysis and visuals	10%
Combined integrative analysis by both teams	10%
Total:	100% or 30 points

The rubric for grading the class project presentations is as follows:

Clear and compelling slides	20%
Convincing presentation of analysis and recommendations	40%
Balanced contributions by all team members	20%
Creativity and innovation in the presentation	20%
Total:	100% or 10 points

Course Reading:

For this course, there is one required text: George, Michael L. (2005) *The Lean Six Sigma Pocket Toolbook: A Quick Reference Guide to 100 Tools for Improving Quality and Speed*. New York: McGraw Hill.

There is also one recommended text: Graban, Mark (2012) *Lean Hospitals: Improving Quality, Patient Safety, and Employee Satisfaction, Second Edition*. Boca Raton, FL: CRC Press.

Additionally, we will use cases, articles and online simulations from Harvard Business School Publishing (HBSP), as well as monographs and cases posted on LATTE by permission from other sources. You will need to create an account with HBSP and then to purchase the required Course Pack online established for this course.

Provisions for Feedback: Case analyses will normally be returned 7 days after they are submitted to me. Class participation grades and Team Process Analysis Project grades will be given at the end of the semester. I will provide interim feedback on class participation during the course of the term and I will seek class feedback on our shared learning process.

Academic Integrity: Academic integrity is central to the mission of educational excellence at Brandeis University. Each student is expected to turn in work completed independently, except when assignments specifically authorize collaborative effort. It is not acceptable to use the words or ideas of another person – be it a world-class philosopher or your project partner – without proper acknowledgement of that source. This means that you must use footnotes or other appropriate citations and quotation marks to indicate the sources of any phrases, sentences, paragraphs or ideas found in published books, articles, material on the internet, or the ideas of another student.

Violations of university policies on academic integrity, described in Section 3 of *Rights and Responsibilities*, may result in failure in the course or on the assignment, and could end in suspension from the University. If you are in doubt about the instructions for any assignment in this course, you must ask for clarification.

Notice: If you have a documented disability and require any accommodations, please bring them to my attention prior to the second meeting of the class. If you have any questions about this process, contact Ravi Lakshmikanthan, disabilities coordinator for the Heller School, at kanthan@brandeis.edu or 781-736-2753.

COURSE SCHEDULE

Part I. Introduction

Session 1 January 12 – Course Introduction and the Operations Mindset

Motivating Questions: *Who is in the class? What are our shared learning objectives? How is this course organized? What are the expectations and deliverables? What is the case method for learning? What is an operations mindset?*

Preparation Assignment: Pick an organization in which you have worked or with which you are very familiar. Focus in on a work process and, on a single slide (PowerPoint or otherwise), specify the following:

- The value proposition for a key customer, client, or stakeholder
- The steps in the work flow associated with delivering on the value proposition
- The metrics used to measure success

Please bring a printed copy of your slide to class – with your name on it.

In-Class Simulation: Tinker toy tower construction exercise

Part II. Process Flow

Session 2 January 19 – Process Fundamentals

Motivating Questions: *What is operations management? How do we look at and analyze processes? What are the key elements and concepts? How do you analyze the capacity of a process? What are typical management issues related to providing sufficient capacity cost-effectively?*

Required Readings:

Process Fundamentals by Ann E. Gray; James Leonard (696023-PDF-ENG), HBSP

George, Michael L. (2005) *The Lean Six Sigma Pocket Toolbook* –Chapter 4: Voice of the customer

Required Cases to Read and Prepare for Discussion:

Beleza Natural, by Omar Besbes; Nelson M. Fraiman; Marcelo Olivares; Maria J. Quinteros; Gabriel Y. Weintrau (CU50-PDF-ENG), HBSP

Recommended Readings (optional):

Graban, Mark (2012) *Lean Hospitals,* Chapter 3: Value and Waste
Note on the Management of Queues, David Maister, HBSP
Note on Managing Process Flows, HBSP

Session 3 **January 26 – Capacity, Demand, Work Flow Diagrams, and Value Stream Mapping**

Motivating Questions: *How do we plan for and effectively deliver products and services to meet variable demands?*

Required cases to read and prepare for discussion:

Donner Company case, HBSP

Required Readings:

George, Michael L. (2005) *The Lean Six Sigma Pocket Toolbook* –Chapter 3: Value stream mapping and process flow tools

Recommended Readings (optional):

Graban, Mark (2012) *Lean Hospitals,* Chapter 4: Observing the Process and Value Streams

Comments: In this session we will examine a case that highlights the importance of operational effectiveness on the performance of the firm. Analyzing process flows and revising operating parameters, whether related to customer service functions or production processes (Donner), are fundamental skills needed in operations management. Process mapping and value stream mapping tools and methods will be introduced.

Note: The Team Process Analysis Project will be discussed.

Session 4 **February 2 – Process Flow and Inventory Analysis in Service Operations**

Motivating Questions: *How is the design of physical facilities, deployment of people resources, operating procedures, and variability relevant to operational systems and overall performance?)*

Required Readings:

Breaking the Trade-Off Between Efficiency and Service, Frances Frei, HBSP

In-Class Online Simulation:

Operations Management Simulation: Benihana V2, HBSP

Recommended Readings (optional):

Graban, Mark (2012) *Lean Hospitals,* Chapter 9: Improving Flow

Comments: This session brings together most of the major forces affecting operations. Students will run the *Benihana* simulation in class to experience the interplay of design, operating rules, demand variability, and other factors in a restaurant operation.

Part III. Process Improvement

Session 5 February 9 – Quality Principles, Statistical Process Control and Six Sigma

Motivating Questions: *What is Quality Management? What are the fundamental elements of Process Improvement? What is the history, how did these philosophies and techniques develop? What is Lean? Six Sigma? How do these concepts relate to each other? What does any of this have to do with the design and delivery of healthcare or other services?*

Required Readings:

George, Michael L. (2005) *The Lean Six Sigma Pocket Toolbook* – Chapter 1: Using DMAIC to improve speed, quality, and cost; and Chapter 2: Working with ideas

Earll Murman, Tom Allen, Kirkor Bozdogan, Joel Cutcher-Gershenfeld, Hugh McManus, Debbie Nightingale, Eric Rebentisch, Tom Shields, Fred Stahl, Myles Walton, Joyce Warmkessel, Stanley Weiss, and Sheila Widnall (2002) *Lean Enterprise Value: Insights from MIT's Lean Aerospace Initiative,* New York: Palgrave/Macmillan – chapter 4: Lean Thinking.

Cutcher-Gershenfeld, Joel, Dan Brooks, and Marty Mulloy (2015) *Inside the Ford-UAW Transformation: Pivotal Events in Valuing Work and Delivering Results.* Cambridge, MA: MIT Press – Chapter 5: Knowledge-Driven Work.

Required Cases to Read and Prepare for Discussion:

Cincinnati Children's Hospital Medical Center, HBSP

Class Resource:

GBMP DVD: Doctor Visit Kaizen Value Stream Mapping. Instructions will be available on LATTE. Watch Parts 1 & 2.

Recommended Readings (optional):

Graban, Mark (2012) *Lean Hospitals,* Chapter 5: Standardized Work as a Foundation of Lean

Graban, Mark (2012) *Lean Hospitals,* Chapter 10: Engaging and Leading Employees

Session 6 February 16 – Policy Deployment (Hoshin Konri) and Performance Metrics

Motivating Questions: *What Key Performance Indicators (KPIs) lead and lag process improvement? How are performance metrics aligned at all levels in an organization? What performance metrics are particularly relevant for different types of service organizations? What are the limits of performance metrics as a guide for process improvement?*

Required Readings:

George, Michael L. (2005) *The Lean Six Sigma Pocket Toolbook* –Chapter 7: Variation analysis, and Chapter 8: Identifying and verifying causes

Robert Kaplan and David Norton (2006) *Alignment: Using the Balanced Scorecard to Create Corporate Synergies,* Cambridge, MA: Harvard Business School Press – Chapter 3; Aligning Financial and Customer Strategies

Recommended Readings (optional):

Cutcher-Gershenfeld, Joel, Dan Brooks, and Marty Mulloy (2015) "Chapter 4: Business Fundamentals," Cambridge, MA: MIT Press.

In-Class Simulation:

Deming's red bead experiment

Written Case Assignment:

Sof-Optics case, HBSP

Note: The Written Case Analysis is due. You will apply these concepts in an analysis and written assignment of the *Sof-Optics* case, involving call flow and service operations. You should work independently on this assignment

Note: The Team Process Analysis Project teams will be paired.

February 23 – No class

Session 7 **March 2 – Continuous Process Improvement (Kaizen) and Quality Operating Systems**

Motivating Questions: *What is the Toyota Production System — TPS — and why is it important? How do we apply the Lea philosophy in both manufacturing and service operations?*

Required Readings:

George, Michael L. (2005) *The Lean Six Sigma Pocket Toolbook* –Chapter 5: Data collection, and Chapter 6: Descriptive statistics and data displays

Cutcher-Gershenfeld, Joel, Dan Brooks, and Marty Mulloy (2015) *Inside the Ford-UAW Transformation: Pivotal Events in Valuing Work and Delivering Results.* Cambridge, MA: MIT Press – Chapter 8: Integrated Operating Systems

Decoding the DNA of the Toyota Production System, HBSP

Required cases to read and prepare for discussion:

The Perfect Storm: A Low-Performing Biotech Plant, by Robert D. Landel; Rebecca O. Goldberg (UV6034-PDF-ENG).

Recommended Readings (optional):

Graban, Mark (2012) *Lean Hospitals,* Chapter 6: Lean Methods: Visual Management, 5S, and Kanban

How to Change a Culture: Lessons From NUMMI, HBSP

Fixing Health Care from the Inside, HBSP

Part IV. Systems Operations

Session 8 March 9 – Cross-Functional Coordination Enabling Operations

Motivating Questions: *What kinds of activities must operations managers coordinate to ensure effective performance of the entire system? In what ways do they orchestrate the variety of activities needed to deliver products or services, both inside and outside their organizations?*

Required Readings:

Coordination: An Overview, HBSP

Gittell, Jody Hoffer (2005) The Southwest Airlines Way, New York: McGraw Hill, Chapters 2, 3, and 4

Required Cases to Read and Prepare for Discussion:

MGH PATA, available on LATTE

Recommended Readings (optional):

Michael E. Porter and James Heppelmann (2015) "How Smart, Connected Products Are Transforming Companies," *Harvard Business Review* (R1510G-PDF-ENG)

Comments: Coordination is one of the fundamental roles in operations management. This session explores aspects of Coordination and builds on process analysis and improvement work.

Session 9 March 16 – Operations in in Developing Countries

Motivating Questions: *How do operations within not-for-profit organizations differ from the for-profit sector? What are the additional complexities associated with NGOs and operations in developing countries?*

Required Readings:

Knut Haanaes; David Michael; Jeremy Jurgens; Subramanian Rangan, "Making Sustainability Profitable," *Harvard Business Review* (R1303K-PDF-ENG), HBSP

Required Cases to Read and Prepare for Discussion:

VidaGas: VillageReach - The Mozambican Foundation for Community Development Joint Venture, HBSP

Recommended Readings (optional):

Graban, Mark (2012) *Lean Hospitals,* Chapter 8: Preventing Errors and Harm

Comments: This session uses the VidaGas case to explore the unique characteristics of not-for-profit operations in developing countries.

Session 10 March 23 – Supply Chain Management and Data Analytics

Motivating Questions: *What is Supply Chain Management? What are the key elements? What about forecasting, balancing supply and demand? How can "big data" and analytics be applied in mission-driven organizations?*

Required Readings:

George, Michael L. (2005) *The Lean Six Sigma Pocket Toolbook* –Chapter 9: Reducing lead time and non-value add cost

Supply Chain Management article on LATTE

Written Case Assignment:

Pediatric Orthopedic Clinic at the Children's Hospital of Western Ontario (Robert Klassen, Kellie Leitch, Manpreet Hora), HBSP

Note: The Written Case Analysis is due. You will apply these concepts in an analysis and written assignment of the *Pediatric Orthopedic Clinic* case, involving patient flow and service challenges. You should work independently on this assignment.

In-Class Online Simulation: *Root Beer Game,* HBSP.

Recommended Readings (optional):

Making Supply Meet Demand in an Uncertain World, HBSP
What Is the Right Supply Chain for Your Products? HBSP
Gilvan C. Souza, Supply Chain Analytics, *Business Horizons* (2014), (BH627-PDF-ENG)

Comment: New forms of data analytics are relevant across diverse organizational settings and are advancing the frontier for operations management.

Part V. New Frontiers

March 30 and April 6 – No class

Session 11 April 13 – Systems Transformation

Motivating Questions: *How do integrated operating assumptions provide a window into operating systems? What is involved in changing operating assumptions? How do pivotal events add up to a transformation in operating systems?*

Required Readings:

Kochan, Thomas (2015) "The Leader's Choice," *Sloan Management Review*, HBSP

Required Cases to Read and Prepare for Discussion:

Frogtek: Mobile Technology for Micro-Retailing by Margaret Pierson; Garrett J. van Ryzin (CU36-PDF-ENG), HBSP

Recommended Reading (optional):

Staples: A Year in the Life of a Start-Up by Myra M. Hart (800241-PDF-ENG)

Graban, Mark (2012) *Lean Hospitals,* Chapter 11: Getting Started with Lean

Graban, Mark (2012) *Lean Hospitals,* Chapter 12: A Vision for a Lean Hospital

A portion of class time will also be available for students to work on their Team Process Analysis projects.

Session 12 April 20 – Social Protest Operations

Motivating Questions: *What can we learn from viewing social protests through an operations lens? Is there such a thing as an efficient or inefficient action?*

Required Readings:

George, Michael L. (2005) *The Lean Six Sigma Pocket Toolbook* –Chapter 10: Complexity value stream mapping and complexity analysis, and Chapter 11: Selecting and testing solutions

R. Kelly Garrett (2006) Protest in an Information Society: a review of literature on social movements and new ICTs, Information, Communication & Society, 9:2

Additional review of primary materials found on-line and through interviews, including these materials from the first Ford Hall occupation (and other more current materials): https://lts.brandeis.edu/research/archives-speccoll/exhibits/ford/occupation/index.html

Special Focus:

Ford Hall

Recommended Readings (optional):

Putting the Service-Profit Chain to Work, HBSP

Comments: This session will feature a panel discussion of social change actions here on the Brandeis Campus and an analysis of operational factors, including the movement of people, arrangements for food, information and communication flow, and other considerations.

Session 13 April 25 (Wednesday Brandeis Days) – Concluding Presentations:

Each of the Team Pairs will present both of their Process Analysis & Improvement Projects in class (as a combined presentation).

The two teams should prepare a joint Powerpoint presentation with no more than 4 slides each and no more than 2 integrative slides, for a total of 8 slides (not counting the cover slide). The joint presentation should be no more than 7 minutes and all team members should present some part of the material.

The due date for the powerpoint presentation component of this assignment is 1:00pm on the day before the last class and the paper component is due at 1:00pm on Monday following the last class. **Please note that late submissions will incur a grade point penalty.** Please send your slides and your paper by e-mail with the last names of your team members in the subject line.

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Additional 2+2 Term Project Assignment Guidance

This team field project enables you to apply the skills you have learned during the course. You will form a small team of 2 people (3 in some cases). Together, you will identify an organization to study and focus on a specific process in that organization. Part way through the fieldwork you will be joined with a second team (hence the 2+2 title), which will allow you to compare and contrast findings.

The organization studied can be for-profit or non-profit. However, please get my approval before choosing an organization that you have analyzed for another course or one in which a team member is recently or currently employed. As with any field project, the first principle is "do no harm" and the risk is higher is a team members is currently working in the organization or has recently done so.

In conducting the field observation, you will need to "go and see" in order to collect process data. In some exceptional circumstances this can be done virtually, such as an organization in another city or country, but it will be more challenging. You can use any of the course concepts in your analysis and you should use more than one concept. You may need to consult additional sources in order to apply the concepts to your situation, which you are encouraged to do. In the final paper and presentation, do not include individual's names – just their role or title (to reduce risk to those individuals). The final paper will have three parts, which are as follows (with target page lengths listed): • Team 1 introduction, diagrams, analysis, recommendations – 4-7 pages single-spaced • Team 2 introduction, diagrams, analysis, recommendations – 4-7 pages single-spaced • Integrative conclusions – 1-2 pages single-spaced

The final paper will be judged based on the following criteria, with a separate grade for each team (you will both get the same credit for the 1-2 pages of integrative conclusions):

Work flow diagrams or value stream maps	30%
Analysis of the operations (using course concepts)	40%
Specific improvement recommendations	20%
Creativity and innovation in the analysis	10%
Total:	100% or 30 points

The two teams should prepare a joint Powerpoint presentation with no more than 4 slides each and no more than 2 integrative slides, for a total of 10 slides (not counting the cover slide). The joint presentation should be no more than 10 minutes and all team members should present some part of the material.

The due date for the powerpoint presentation component of this assignment is noon on the day before our last class and the paper component is due at noon on the Monday after our last class). Please note that late submissions will incur a grade point penalty. Please upload your paper and Powerpoint presentation via the Latte collector.

Emergency Response Recommendations

In any organization, safety is the number one consideration. The Department of Homeland Security recommends the following three responses to any emergency on campus: **RUN > HIDE > FIGHT**

ONLY FOLLOW THESE ACTIONS IF SAFE TO DO SO. When in doubt, follow your instincts—you are your own best advocate!

RUN

Action taken to leave an area for personal safety.

- Take the time now to learn the different ways to leave the building **BEFORE** there is an emergency.
- Evacuations are mandatory for fire alarms and when directed by authorities. **No exceptions!**
- Evacuate immediately. Pull manual fire alarm to prompt a response for others to evacuate.
- Take critical personal items only (keys, purse, and outerwear) and close doors behind you.
- Assist those who need help, but carefully consider whether you may put yourself at risk.
- Look for **EXIT** signs indicating potential egress/escape routes.
- If you are not able to evacuate, go to an Area of Rescue Assistance.
- Evacuate to Evacuation Assembly Area and remain until additional instructions are given.
- Alert authorities to those who may need assistance.
- Do not re-enter building until emergency response personnel indicate that it is safe to do so.

ACTIVE THREAT:

- If it is safe to do so run out of the building. Get as far away as possible.

HIDE

Action taken to seek immediate shelter indoors when emergency conditions do not warrant or allow evacuation, such as for severe weather.

- Take the time now to learn the different ways to seek shelter within your building **BEFORE** there is an emergency.
- If you are outside, proceed to the nearest protective building.
- If sheltering-in-place due to severe weather, proceed to the identified Storm Refuge Area or to the lowest, most interior area of the building away from windows or hazardous equipment or materials.

ACTIVE THREAT:

- Lock or barricade your area.
- Get to a place where the threat cannot see you.
- Place cell phones on **silent**.
- Do not make any noise.
- Do not come out until your are advised it is safe.

FIGHT

Action taken as a last resort to increase your odds for survival.

ACTIVE THREAT: If you cannot run away safely or cannot hide, **be prepared to fight with anything available to increase your odds for survival.**