

School of Public Health

Syllabus and Course Information



UNIVERSITY OF MINNESOTA
Driven to DiscoverSM

PubH 6765 Continuous Quality Improvement Methods/Techniques Spring 2017

Credits: 3
Meeting Place: Online
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Document Change Log

Revision Level	Change Effective Date	Change Author	Summary Description of Change
Homework grid clarification	1/19/17	J. McCarthy	Removed module numbers that were not linked to the weeks in Moodle
Late assignment/discussion posting clarification	1/25/17	J. McCarthy	Clarified the policy for late assignments and discussion postings
Points distribution	4/5/17	J. McCarthy	Corrected points distribution calculation
Correct homework due dates	4/11/17	J. McCarthy	Changed week 4/17-23 discussion due date to align with week

I. Course Description

This course provides an overview of quality improvement (QI) in health care and public health settings. While QI has a long history in healthcare and is a central component of recent health reform efforts, it is also increasingly important in public health. It is now widely recognized that incorporating quality improvement in an organization's vision, mission and operations can enhance processes, improve outcomes and safety, manage costs, and provide a better experience. Regardless of setting or organization, the cornerstones of QI are: identifying and using data to prioritize opportunities and measure impact, setting goals based on evidence, and creating changes that result in improved care or service that are sustainable over time.

The course begins with an overview of the historical, theoretical, and conceptual background needed to develop the systems thinking skills necessary for effective QI. Students will be challenged to look for improvement opportunities and identify the impact of processes and systems on human performance.

The course will then focus on the methodology and approach to making improvements with online discussions, and readings pertaining to the various stages of a QI project (problem identification, analysis, idea and solution generation, application and testing/piloting of ideas, P-D-S-A cycles, greater rollout of solutions, project management, change management, and sustainability).

With an eye toward translating theory into practice, this course will include practical steps and commonly used tools to apply theory and achieve desired outcomes. This includes discussion of data, measurement, analysis, tactics to obtain appropriate data, and methods to convert data into usable information to help guide decision making.

Throughout the course, students will be challenged to look at the world through the QI lens and see ways to make innovative and effective changes that improve health and how we provide care.

II. Course Prerequisites

There are no prerequisites for this course.

III. Course Goals and Objectives

Upon completing this course, students will be able to:

1. Describe the history and background of quality improvement (QI) in health care.
2. Describe how accreditation, regulation and public reporting impact quality improvement.
3. Summarize the most commonly used QI models (e.g., Lean, Six Sigma, and Model for Improvement), their similarities and complimentary approaches.
4. Explain the main concepts, theories and principles of QI and give examples of application of concepts, theories and principles.
5. Differentiate between QI and Research.
6. Describe key steps and methods to manage a QI project.
7. Develop appropriate targets and performance measures.
8. Summarize various data sources, types, and appropriate approaches to analysis.
9. Demonstrate an A3 problem solving process.
10. Select and use tools appropriately that support concepts, theories and principles of QI.
11. Describe methods for sustaining and spreading the outcomes of QI initiatives.

IV. Methods of Instruction and Work Expectations

The general format of the course will consist of selected readings, videos and lessons to be read and viewed followed by discussion questions. Active engagement and thoughtful responses to other student's postings is critical to synthesizing the learnings. Individual and/or group assignments, activities, and projects are intended to provide greater understanding, practice, and application with CQI theory, tools, and techniques.

V. Course Text and Readings

The following texts are required:

1. Langley, G.J., Moen, R., Nolan, K.M., Nolan, T.W., Norman C.L., & Provost, L.P. (2009). *The improvement guide: A practical guide to enhancing organizational performance (2nd ed.)*. San Francisco, CA: Jossey-Bass.
2. Brassard, M., Ritter, D. (2010). *The memory jogger II: Tools for continuous improvement and effective planning*. F. Oddo (Ed.). Salem, NH: GOAL/QPC

The texts are available at the University of Minnesota Bookstore in Coffman Union on the Minneapolis Campus or via on-line services such as Amazon.com.

Additional readings are assigned each week. They are listed on the course schedule below and are available on the Moodle website.

VI. Course Outline/Weekly Schedule

Week 1 – January 17-22, 2016: Welcome and Introduction to CQI

Learning Objectives:

- Discuss thoughts and current understanding of CQI
- Explain why QI is important
- Discuss the relationship between safety and CQI
- Describe the Triple Aim and external forces that impact it

Required Readings

Textbook:

Langley, G.J., Moen, R., Nolan, K.M., Nolan, T.W., Norman C.L., & Provost, L.P. (2009). *The improvement guide: A practical guide to enhancing organizational performance (2nd ed.)*. San Francisco, CA: Jossey-Bass. –

- Pages 1-26,
- Pages 124-125 (Baldrige Award)
- Pages 456-457 (Juran's Universal Sequence)

The Triple Aim: Care, Health, And Cost

<http://content.healthaffairs.org/content/27/3/759.long>

A Primer on Defining the Triple Aim

<http://www.ihl.org/communities/blogs/Documents/rsomgtae.4lc.1e880535-d855-4727-a8c1-27ee672f115d.33.pdf>

Defining “Quality”: Aiming for a Better Health Care System

<http://www.ihl.org/education/IHIOpenSchool/resources/Pages/Activities/DefiningQualityAimingforaBetterHealthCareSystem.aspx>

Meals Per Hour

<https://www.youtube.com/watch?v=EedMmMedj3M>

Dr. Mike Evans Video: An Illustrated Look at Quality Improvement in Health Care

<http://www.ihl.org/resources/Pages/AudioandVideo/MikeEvansVideoQIHealthCare.aspx>

How the U.S. Compares to the world in Quality and Cost of Health Care

1) http://www.commonwealthfund.org/~media/files/publications/fund-report/2014/jun/1755_davis_mirror_mirror_2014.pdf

2) http://www.huffingtonpost.com/sandro-galea/the-case-for-public-health_b_11699182.html

Assignments

- See homework/assignment grid

Week 2 – January 23-29, 2016: The history of QI; Projects, Operations, and QI

Learning Objectives:

- Describe the history of QI
- Describe how regulation and accreditation can both support and hinder QI efforts
- Compare and contrast QI and Project management: value, triple/quadruple aim vs. triple/quadruple constraints, difference between (transformative) projects and operations, and the project management life cycle

Required Readings: none

Week 3 – January 30- February 5, 2016: QI Models and QI vs. Research

Learning Objectives:

- Compare and contrast QI methodology, Lean, Six Sigma, Model for Improvement
- Explain differences between QI methodology and project management
- Differentiate between quality improvement, quality assurance, and research
- Differentiate data for CQI vs. data for research
- Identify role of IRB in health care and public health data collection
- Describe PM methodologies: Lists and descriptions, Value and applicable situation for each
- Define: Scope, Schedule, Budget, Customer Satisfaction

Required Readings:

Textbook:

Langley, G.J., Moen, R., Nolan, K.M., Nolan, T.W., Norman C.L., & Provost, L.P. (2009). The improvement guide: A practical guide to enhancing organizational performance (2nd ed.). San Francisco, CA: Jossey-Bass. –

- Pages 75-108
- Pages 453-456
- Pages 457-459 (Six Sigma)

The Hawthorne Effect

<http://www.economist.com/node/12510632>

The Toyota Production System

<https://www.youtube.com/watch?v=8KJaEOiHxNw>

And

<https://www.youtube.com/watch?v=Vjdil2nBCf0>

How Lean Works

https://www.youtube.com/watch?v=RxDw0Q_gVt0

Six Sigma In Plain English

<https://www.youtube.com/watch?v=tj8Saa1MbrI>

Responsibility Assignment

<http://project-management.com/understanding-responsibility-assignment-matrix-raci-matrix/> (only through "How PMs have used RACI")

Project Management Introduction

<https://www.youtube.com/watch?v=9LSnINgIkQA>

And

<https://www.youtube.com/watch?v=r5qFLd1u0XQ>

Agile (Scrum) in 10 minutes

<https://www.youtube.com/watch?v=XU0lIRItyFM>

Model for improvement

part 1 <http://www.ihl.org/education/ihlopenschool/resources/pages/audioandvideo/whiteboard3.aspx>

And

part 2 <http://www.ihl.org/education/IHIOpenSchool/resources/Pages/AudioandVideoWhiteboard4.aspx>

Assignments

- See homework/assignment grid

Week 4 – February 6-12, 2016: QI Theories, Concepts, and Principles

Learning Objectives:

- Describe how the patient/ customer is the center of all QI.
- Recall common wastes and flows.
- Differentiate between system thinking and process thinking.
- Create a process flow map.
- Explain the value and application of key QI concepts (such as: seeing the work happen where it happens, engaging those closest to the work to improve the work, letting data drive decision making, identifying root causes, making things visual, just in time delivery, error and defect reduction through process build)
- List benefits of standards

Required Readings:

Textbook:

Langley, G.J., Moen, R., Nolan, K.M., Nolan, T.W., Norman C.L., & Provost, L.P. (2009). The improvement guide: A practical guide to enhancing organizational performance (2nd ed.). San Francisco, CA: Jossey-Bass. –

- Pages 364-408

The Importance of Going to the Gemba (read both of these in order)

1. https://www.jointcommission.org/jc_physician_blog/leading_improvement_go_to_the_gemba/
2. <http://www.lean.org/shook/displayobject.cfm?o=1843>

The importance of making things visual

<https://youtu.be/p3coW0Moxz4>

<https://youtu.be/BObvCAAaVg4>

<http://www.leanexperience.com.au/information/visual/>

Making a process flow map

<http://leanmanufacturingtools.org/542/process-mapping-your-value-stream/>

Slides 55-71, 82-98:

[https://www.pdx.edu/fadm/sites/www.pdx.edu.fadm/files/01_201209%20WACUBO%20Process%20Improvement%20Slides%20\(1\).pdf](https://www.pdx.edu/fadm/sites/www.pdx.edu.fadm/files/01_201209%20WACUBO%20Process%20Improvement%20Slides%20(1).pdf)

Idea-Generation from the Bottom Up

<http://www.ideamanagement.nl/nl/bsArtikel3.htm> (through “Organizational Requirement”)_

Jidoka

<http://leanmanufacturingtools.org/489/jidoka/> (through “Jidoka and Lean Manufacturing Tools”)

Andon

<http://www.shmula.com/about-peter-abilla/what-is-andon-in-the-toyota-production-system/>

Control Charts, Pareto Charts (making data visual)

The Memory Jogger 53-74, 122-135

5 Why

<http://www.shmula.com/root-cause-analysis/172/>

Poka Yoke (Mistake Proofing)

<http://www.shmula.com/about-peter-abilla/what-is-poka-yoke/>

JIT

<http://www.shmula.com/about-peter-abilla/what-is-just-in-time-manufacturing/>

Assignments

- See homework/assignment grid

Week 5 – February 13-19, 2016: HRO’s and a culture of safety

Learning Objectives:

- Describe characteristics of high reliability organizations
- Describe what is meant by a “just” approach to managing human behavior
- Discuss the relationship between safety and CQI

Required Readings

Just Culture – 3 Types of Behaviors to Address

<https://www.fsbpt.org/Licensees/EthicalConduct/BasicConceptsofaJustCulture.aspx>

What Level of Quality is Good Enough

Read one of the below (you may not all have LinkedIn access, we realize)

<https://www.linkedin.com/pulse/20140520185633-74136-quality-check-is-99-9-good-enough>

http://www.nwitimes.com/business/local/is-good-good-enough/article_ecfe699e-cedc-5a1c-b2a0-cd7496ac1c73.html

The Six-Sigma Dabawalas

<https://www.youtube.com/watch?v=-K-qlwXoGHE>

High-Reliability Health Care: Getting There from Here

https://www.jointcommission.org/assets/1/6/Chassin_and_Loeb_0913_final.pdf

Assignments

See homework/assignment grid

Week 6 – February 20-26, 2016: Cognitive errors

Learning Objectives:

- Define human factors that contribute to errors and mistakes
- Differentiate human error, at-risk behavior, and reckless behavior

Required Readings

Human Factors Engineering

<https://psnet.ahrq.gov/primers/primer/20>

Understanding and Preventing Cognitive Errors in Healthcare

<http://www.merckmanuals.com/professional/special-subjects/clinical-decision-making/cognitive-errors-in-clinical-decision-making>

And

<https://www.youtube.com/watch?v=OXcGciywtgM>

Assignments

- See homework/assignment grid

Week 7 – February 27- March 5, 2016: Project life cycle

Learning Objectives:

- Define Project Management and Change Management
- Differentiate project life cycle phases and where QI, PM, and CM fit within the life cycle
- Identify benefits of good Project Management and Change Management that help with QI

Required Readings

Project Triple (and more) Constraint (read both of these in order)

1. <http://whatis.techtarget.com/definition/triple-constraint>

2. <http://iseman.com/eighth-constraint/>

Change Management

<http://www.strategy-business.com/article/rr00006?gko=643d0>

Including video on page, also found at: <https://www.youtube.com/watch?v=PQ0doKfhecQ>

And:

https://www.youtube.com/watch?v=k69i_yAhEcQ

Project Management Life Cycle

<https://www.youtube.com/watch?v=POuGKD3xLqs>

Assignments

- See homework/assignment grid

Week 8 – March 6-12, 2016: A3 problem solving

Learning Objectives:

- Document a PDSA cycle utilizing the A3 problem solving process

Required Readings

A3 Problem Solving Tool (Denver Public Health)

<https://www.youtube.com/watch?v=JaVMUoQBygE>

And template:

http://www.lean.org/downloads/A3_ppt_templates.ppt

Assignments

- See homework/assignment grid

Week 9 – March 13-19, 2016: Spring Break

Required Readings

- None

Assignments

- None

Week 10 – March 20-26, 2016: How do I know it is a problem?

Learning Objectives:

- Describe how process flow maps and VSM's can be used to identify opportunities for improvement
- Explain elements of time in value stream maps and how they are used in QI
- Demonstrate strategies for converting data into information for CQI
- Develop Pareto charts, histograms and scatter plots
- Describe how Pareto charts, histograms and scatter plots can be used in a CQI project
- Develop a data collection strategy (collection, sample, frequency and duration)

Required Readings

Textbook:

Langley, G.J., Moen, R., Nolan, K.M., Nolan, T.W., Norman C.L., & Provost, L.P. (2009). The improvement guide: A practical guide to enhancing organizational performance (2nd ed.). San Francisco, CA: Jossey-Bass. –

- Pages 28-37 (Supporting change with data)
- Page 413 (process flow diagram)
- Pages 441-442 (scatterplot)
- Pages 436-437 (Pareto chart)

The Memory Jogger

- Pages 188-193

VSM Basics

<https://www.youtube.com/watch?v=nOLWp99bCsl>

And

VSM Basics PDF

Histograms,

The Improvement Guide pp 439

Memory Jogger pp 91-100

Radar Chart

The Improvement Guide pp 432-433

Memory Jogger pp 178-181

Spaghetti Diagram

The Improvement Guide pp 415, 419

Standard Work Combination Sheet

<https://www.youtube.com/watch?v=YIYS8G6t0hw>

Takt, Cycle, and Lead Times

<https://www.youtube.com/watch?v=isu6MG3v0-s>

PQA: Don't Boil The Ocean; Figure Out Where to Focus Your QI Efforts

<http://blog.gembaacademy.com/2008/02/12/how-to-create-a-product-quantity-product-routing-matrix/>

Slow Down to Speed Up: The Dangers of Multi-Tasking

<http://www.health.com/health/gallery/0,,20707868,00.html>

Assignments

- See homework/assignment grid

Week 11 – March 27- April 2, 2016: Variation, targets, aims, goals and measures

Learning Objectives:

- Distinguish between common cause vs. special cause variation
- Describe why understanding variation is important in order to understand human performance
- Differentiate outcomes and process measures
- Formulate Smart Goals
- Create measures and indicators (outcome, process, balancing and structural)
- Describe how to interpret data from control charts and run charts

Required Readings

Textbook:

Langley, G.J., Moen, R., Nolan, K.M., Nolan, T.W., Norman C.L., & Provost, L.P. (2009). The improvement guide: A practical guide to enhancing organizational performance (2nd ed.). San Francisco, CA: Jossey-Bass. –

- Pages 238-250
- Pages 276-284
- Page 398 (Exploit Variation)

Variation – Definitions and Causes

<https://www.isixsigma.com/tools-templates/variation/variation-root-all-process-evil/>

And

http://www.saferpak.com/six_sigma_art1.htm

And

<https://www.isixsigma.com/tools-templates/variation/seeking-the-causes-of-variation/>

The Improvement Guide pp 398,433-439

Human Performance Impacts to Variation

<http://www.som.cranfield.ac.uk/som/dinamic-content/research/cbp/SM%20Manufacturing%20Systems.pdf>

Science of Improvement: Establishing Measures

<http://www.ihl.org/resources/pages/howtoimprove/scienceofimprovementestablishingmeasures.aspx>

SMART Targets

<http://www.aleanjourney.com/2013/08/establishing-smart-goals-ensures-clarity.html>

Control Charts

<http://blog.minitab.com/blog/applying-statistics-in-quality-projects/five-ways-to-make-your-control-charts-more-effective>

Assignments

- See homework/assignment grid

Week 12 – April 3-9, 2016: Creating the project and conducting an improvement event

Learning Objectives:

- Create project documents that define a project, problem statement, scope, and SMART targets
- Discuss types of improvement events (RPIW, KE, Agile)
- Explain the steps in an improvement event

Required Readings

QI Types

<http://www.ncbi.nlm.nih.gov/books/NBK2682/>

QI improvement project steps

<http://www.beckersasc.com/asc-accreditation-and-patient-safety/10-steps-for-analysis-of-quality-improvement-projects.html>

SBAR

https://www.jointcommission.org/at_home_with_the_joint_commission/sbar_%E2%80%93_a_powerful_tool_to_help_improve_communication/

What's an RPIW? What's a Kaizen Event?

<https://www.youtube.com/watch?v=uXmmoawaScw>

And

<https://www.youtube.com/watch?v=og6j761NyQ0>

Assignments

- See homework/assignment grid

Week 13 – April 10-16, 2016: FMEA and RCA

Learning Objectives:

- Describe the Root Cause Analysis process
- Apply concepts of human factors and human decision making to RCA
- Gather and organize information for RCA
- Compare and contrast weak, intermediate and strong interventions
- Apply tools (flowcharts, timelines, Cause and Effect Diagrams and the 5 Why's) to the RCA process
- Compare RCA and FMEA

Required Readings

Textbook:

Langley, G.J., Moen, R., Nolan, K.M., Nolan, T.W., Norman C.L., & Provost, L.P. (2009). *The improvement guide: A practical guide to enhancing organizational performance (2nd ed.)*. San Francisco, CA: Jossey-Bass.

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- Page 411 (FMEA)
- Page 423 (FMEA)
- Page 429 (Cause-and-Effect diagram)

Memory Jogger

- Pages 34-45

Failure Modes and Effects Analysis (FMEA) Tool

<http://www.ihi.org/resources/pages/tools/failuremodesandeffectsanalysisistool.aspx>

And

<http://app.ihi.org/Workspace/tools/fmea/>

And

<http://app.ihi.org/Workspace/tools/fmea/TourFMEATool.htm>

Root Cause Analysis Toolkit

<http://www.health.state.mn.us/patientsafety/toolkit/> Review, especially the RCA Process Handout, Graphic Organizers/diagrams, RCA Question Guides/Contributing Factors, Checklists/templates/agendas for review process, corrective actions/measurement sections

Root Cause Analysis Training for Health Care

<https://www.youtube.com/watch?v=4blDoFN5a1g&feature=youtu.be>

Assignments

- See homework/assignment grid

Week 14 – April 17-23, 2016: Human centered design, ideas, solutions, piloting & testing

Learning Objectives:

- Identify Strategies to choose QI interventions
- Demonstrate tools to encourage creative thinking
- Develop future state
- Compare and contrast piloting/testing vs. slow planned rollout

Required Readings

Textbook:

Langley, G.J., Moen, R., Nolan, K.M., Nolan, T.W., Norman C.L., & Provost, L.P. (2009). *The improvement guide: A practical guide to enhancing organizational performance (2nd ed.)*. San Francisco, CA: Jossey-Bass.

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- Pages 37-40 (from “Creative Thinking” on page 37)
- Pages 128-131

Human-centered Design

<http://www.designkit.org/human-centered-design>

And

<https://www.youtube.com/watch?v=M66ZU2PClCM>

Benefits of Drawing

<http://www.theatlantic.com/entertainment/archive/2015/07/doodling-for-cognitive-benefits/398027/>

Brainstorming (particularly #7)

<https://designshack.net/articles/business-articles/10-tips-for-effective-creative-brainstorming/>

And

<http://www.sparringmind.com/creative-thinking/>

Piloting and Testing

<http://www.ahrq.gov/professionals/quality-patient-safety/patient-safety-resources/resources/match/match4.html>

And

<http://www.solvingdisparities.org/tools/roadmap/implementing-change> (“Implementing Change in Your Organization” and “Pilot Test”-“Why pilot test?”)

Assignments

- See homework/assignment grid

Week 15 – April 24-30, 2016: Implementation, adoption, sustainability and spread of QI initiatives

Learning Objectives:

- Describe Project Management Concepts and tools to support concepts
- Identify the necessary steps to effective project implementation
- Describe QI concepts that compliment PM concepts
- Discuss methods for developing and implementing change
- Identify the role of change management concepts
- Describe the concepts of sustainability and spread in QI
- Summarize the role of dashboards and similar tools

Required Readings

Textbook:

Langley, G.J., Moen, R., Nolan, K.M., Nolan, T.W., Norman C.L., & Provost, L.P. (2009). *The improvement guide: A practical guide to enhancing organizational performance (2nd ed.)*. San Francisco, CA: Jossey-Bass.

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- Pages 195-216
- Pages 452-451
- Pages 413 (Project Management), 444 (WBS)

Project Scope Management

<https://www.isixsigma.com/tools-templates/project-charter/six-sigma-project-charter-vital-control-document/> (charter)

<http://www.projectinsight.net/project-management-basics/project-management-schedule> (WBS)

<http://www.slideshare.net/jmotlagh/project-requirements-what-are-they-and-how-do-you-know-you> (requirements)

Project Schedule Management

http://www.cioarchives.ca.gov/itpolicy/pdf/PM3.4_Planning_Project_Schedule.pdf

Project Change

<http://www.brighthubpm.com/change-management/105738-sample-of-a-change-control-plan-working-through-the-major-components/>

Project Risk Management

<https://bia.ca/risk-management-the-what-why-and-how/>

Communications Plan

<https://www.youtube.com/watch?v=DUE2GqpZbpw>

Using Dashboards to Communicate Project Status

<http://www.techrepublic.com/article/use-dashboards-to-define-and-communicate-project-status/>

And

<http://www.telerik.com/blogs/the-perfect-project-status-report>

Assignments

- None

Week 16 – May 1-7, 2016: Connecting the Dots and Learning Organizations

Learning Objectives:

- Identify common QI, PM, CM tools
- Utilize tools for leading effective project teams
- Recognize options for publication of QI work
- Create a method for tracking and using lessons learned

Required Readings

Textbook:

Langley, G.J., Moen, R., Nolan, K.M., Nolan, T.W., Norman C.L., & Provost, L.P. (2009). The improvement guide: A practical guide to enhancing organizational performance (2nd ed.). San Francisco, CA: Jossey-Bass. –

- Pages 409-451

Project Management Types/Comparisons

<http://www.brighthubpm.com/methods-strategies/67087-project-management-methodologies-how-do-they-compare/>

Project Lessons Learned

http://www2.cdc.gov/cdcup/library/practices_guides/CDC_UP_Lessons_Learned_Practices_Guide.pdf

And

https://www.youtube.com/watch?v=DBUqW_ek4hl

Publishing your work (explore the site)

<http://www.ihl.org/education/IHIOpenSchool/resources/Pages/Publications/default.aspx>

Assignments

- None

Homework/Assignment Grid

Assignments are subject to change and modification as the course progresses as needed to facilitate learning.

Assignments and discussion postings submitted past the deadline are subject to penalty. Discussion question initial postings are due on the Friday at 11:59 pm of the designated week, with peer responses due on Sunday at 11:59 pm of the designated week. In order to respect the time constraints of other students it is important to post by the deadline. Late submissions will be penalized 5 points for late initial post, 5 points for late response posting. For discussions, your own learning benefits from interacting, so it is advised that even if late to still post and respond to others.

Week	Due Date	Discussion questions	Individual Assignment	Group Assignment	Points
1/17 - 22	1/22	Discussion questions			10
1/23 - 29	1/29	Discussion questions			10
1/30 - 2/5	2/5	Discussion questions			10
2/6 - 12	2/12	Discussion questions			10
2/6 - 12	2/12			Find a process and create a process map. Choose a process that you are able to physically observe all or most of. Identify waste in the process using a "star burst."	20
2/6 - 12	2/12			Perform a 5 why's analysis and find root cause(s) on why the Viking ship Draken was unable to participate in the Duluth Tall Ships Festival in August, 2016. Additionally, submit an idea sheet from every team member depicting a problem and drawing a suggested solution for the Draken (does not need to be the root problem, can be any problem discovered or interpreted).	20
2/13 - 19	2/19	Discussion questions			10
2/13 - 19	2/19			Investigate another industry that has a high amount of risk. Applying High Reliability Organization (HRO) principals, what does that industry do to limit errors and reduce inherent danger? How does their culture contribute to overall safety? What do they do well and what could they do better on	20
2/20 - 26	2/26	Discussion questions			10
2/20 - 26	2/26			Case Study 1 due: Will require application of material covered in modules 1-4.2.	30
2/27 - 3/5	3/5	Discussion questions			10

3/6 - 3/12	3/12		Create an A3: Find a troublesome issue and create an A3 on the issue including a problem statement, targets/goals, problem analysis, countermeasures/actions, and a suggested implementation/rollout plan. It is best to use a process that allows for interaction with those involved to gain a deeper understanding.		20
3/20 - 26	3/26	Discussion questions			10
3/20 - 26	3/26			Create a Value Stream Map (VSM) based off one group team members A3 or process map. and Create a data set from the observations of the VSM (e.g. number customers by hour, number of customers by type of sub process etc.) and translate the data into easy to visualize information utilizing a histogram and Pareto chart	20
3/27 - 4/2	4/2	Discussion questions			10
3/27 - 4/2	4/2			Analyze control charts from instructor designated data sets	20
4/3 - 9	4/9	Discussion questions			10
4/3 - 9	4/9			Case Study 2 due: Will require application of material covered in modules 1-9.	30
4/10 - 16	4/16			Conduct a Root Cause Analysis on a case study	30
4/17 - 23	4/23	Discussion questions			10
4/17 - 23	4/23			Perform a Human Centered Design Interview	20
4/24 - 30	4/30	Discussion questions			10
4/24 - 30	4/30			Based on on your teams RCA, create a Work Breakdown Structure and a Communication Plan for the rollout of your recommendations.	30
5/1 - 7	5/7	Discussion questions			10
5/1 - 7	5/7			Case Study 3 due: Will require application of material covered in modules 1-13.	30

Total Points 420

VII. Evaluation and Grading

Assignment Description	Points
Discussion and peer responses	130
Individual and Group assignments	290
Total Points	420

Percentage	Point total	Letter grade
93% - 100%	391 - 420	A
90% - 92.99%	378 - 390	A-
87% - 89.99%	365 - 377	B+
83% - 86.99%	349 - 364	B
80% - 82.99%	336 - 348	B-
77% - 79.99%	323 - 335	C+
73% - 76.99%	307 - 322	C
70% - 72.99%	294 - 306	C-
67% - 69.99%	281 - 293	D+
60% - 66.99%	252 - 280	D
0% - 59.99%	0 - 251	F

The University utilizes plus and minus grading on a 4.000 cumulative grade point scale in accordance with the following:

- A 4.000 - Represents achievement that is outstanding relative to the level necessary to meet course requirements
- A- 3.667
- B+ 3.333
- B 3.000 - Represents achievement that is significantly above the level necessary to meet course requirements
- B- 2.667
- C+ 2.333
- C 2.000 - Represents achievement that meets the course requirements in every respect
- C- 1.667
- D+ 1.333

- D 1.000 - Represents achievement that is worthy of credit even though it fails to meet fully the course requirements
- S Represents achievement that is satisfactory, which is equivalent to a C- or better.

For additional information, please refer to:

<http://policy.umn.edu/Policies/Education/Education/GRADINGTRANSCRIPTS.html>.

Course Evaluation

The SPH will collect student course evaluations electronically using a software system called CourseEval: www.sph.umn.edu/courseeval. The system will send email notifications to students when they can access and complete their course evaluations. Students who complete their course evaluations promptly will be able to access their final grades just as soon as the faculty member renders the grade in SPHGrades: www.sph.umn.edu/grades. All students will have access to their final grades through OneStop two weeks after the last day of the semester regardless of whether they completed their course evaluation or not. Student feedback on course content and faculty teaching skills are an important means for improving our work. Please take the time to complete a course evaluation for each of the courses for which you are registered.

Incomplete Contracts

A grade of incomplete "I" shall be assigned at the discretion of the instructor when, due to extraordinary circumstances (e.g., documented illness or hospitalization, death in family, etc.), the student was prevented from completing the work of the course on time. The assignment of an "I" requires that a contract be initiated and completed by the student before the last official day of class, and signed by both the student and instructor. If an incomplete is deemed appropriate by the instructor, the student in consultation with the instructor, will specify the time and manner in which the student will complete course requirements. Extension for completion of the work will not exceed one year (or earlier if designated by the student's college). For more information and to initiate an incomplete contract, students should go to SPHGrades at: www.sph.umn.edu/grades.

University of Minnesota Uniform Grading and Transcript Policy

A link to the policy can be found at onestop.umn.edu.

VIII. Other Course Information and Policies

Grade Option Change (if applicable):

For full-semester courses, students may change their grade option, if applicable, through the second week of the semester. Grade option change deadlines for other terms (i.e. summer and half-semester courses) can be found at onestop.umn.edu.

Course Withdrawal:

Students should refer to the Refund and Drop/Add Deadlines for the particular term at onestop.umn.edu for information and deadlines for withdrawing from a course. As a courtesy, students should notify their instructor and, if applicable, advisor of their intent to withdraw.

Students wishing to withdraw from a course after the noted final deadline for a particular term must contact the School of Public Health Office of Admissions and Student Resources at sph-ssc@umn.edu for further information.

Student Conduct Code:

The University seeks an environment that promotes academic achievement and integrity, that is protective of free inquiry, and that serves the educational mission of the University. Similarly, the University seeks a community that is free from violence, threats, and intimidation; that is respectful of the rights, opportunities, and welfare of students, faculty, staff, and guests of the University; and that does not threaten the physical or mental health or safety of members of the University community.

As a student at the University you are expected adhere to Board of Regents Policy: *Student Conduct Code*. To review the Student Conduct Code, please see:
http://regents.umn.edu/sites/default/files/policies/Student_Conduct_Code.pdf.

Note that the conduct code specifically addresses disruptive classroom conduct, which means "engaging in behavior that substantially or repeatedly interrupts either the instructor's ability to teach or student learning. The classroom extends to any setting where a student is engaged in work toward academic credit or satisfaction of program-based requirements or related activities."

Use of Personal Electronic Devices in the Classroom:

Using personal electronic devices in the classroom setting can hinder instruction and learning, not only for the student using the device but also for other students in the class. To this end, the University establishes the right of each faculty member to determine if and how personal electronic devices are allowed to be used in the classroom. For complete information, please reference:
<http://policy.umn.edu/Policies/Education/Education/STUDENTRESP.html>.

Scholastic Dishonesty:

You are expected to do your own academic work and cite sources as necessary. Failing to do so is scholastic dishonesty. Scholastic dishonesty means plagiarizing; cheating on assignments or examinations; engaging in unauthorized collaboration on academic work; taking, acquiring, or using test materials without faculty permission; submitting false or incomplete records of academic achievement; acting alone or in cooperation with another to falsify records or to obtain dishonestly grades, honors, awards, or professional endorsement; altering, forging, or misusing a University academic record; or fabricating or falsifying data, research procedures, or data analysis. (Student Conduct Code: http://regents.umn.edu/sites/default/files/policies/Student_Conduct_Code.pdf) If it is determined that a student has cheated, he or she may be given an "F" or an "N" for the course, and may face additional sanctions from the University. For additional information, please see:
<http://policy.umn.edu/Policies/Education/Education/INSTRUCTORRESP.html>.

The Office for Student Conduct and Academic Integrity has compiled a useful list of Frequently Asked Questions pertaining to scholastic dishonesty: <http://www1.umn.edu/oscai/integrity/student/index.html>. If you have additional questions, please clarify with your instructor for the course. Your instructor can respond to your specific questions regarding what would constitute scholastic dishonesty in the context of a particular class-e.g., whether collaboration on assignments is permitted, requirements and methods for citing sources, if electronic aids are permitted or prohibited during an exam.

Makeup Work for Legitimate Absences:

Students will not be penalized for absence during the semester due to unavoidable or legitimate circumstances. Such circumstances include verified illness, participation in intercollegiate athletic events, subpoenas, jury duty, military service, bereavement, and religious observances. Such circumstances do not include voting in local, state, or national elections. For complete information, please see:
<http://policy.umn.edu/Policies/Education/Education/MAKEUPWORK.html>.

Appropriate Student Use of Class Notes and Course Materials:

Taking notes is a means of recording information but more importantly of personally absorbing and integrating the educational experience. However, broadly disseminating class notes beyond the classroom community or accepting compensation for taking and distributing classroom notes undermines instructor interests in their intellectual work product while not substantially furthering instructor and student interests in effective learning. Such actions violate shared norms and standards of the academic community. For additional information, please see: <http://policy.umn.edu/Policies/Education/Education/STUDENTRESP.html>.

Sexual Harassment:

"Sexual harassment" means unwelcome sexual advances, requests for sexual favors, and/or other verbal or physical conduct of a sexual nature. Such conduct has the purpose or effect of unreasonably interfering with an individual's work or academic performance or creating an intimidating, hostile, or offensive working or academic environment in any University activity or program. Such behavior is not acceptable in the University

setting. For additional information, please consult Board of Regents Policy: <http://regents.umn.edu/sites/default/files/policies/SexHarassment.pdf>

Equity, Diversity, Equal Opportunity, and Affirmative Action:

The University will provide equal access to and opportunity in its programs and facilities, without regard to race, color, creed, religion, national origin, gender, age, marital status, disability, public assistance status, veteran status, sexual orientation, gender identity, or gender expression. For more information, please consult Board of Regents Policy: http://regents.umn.edu/sites/default/files/policies/Equity_Diversity_EO_AA.pdf.

Disability Accommodations:

The University of Minnesota is committed to providing equitable access to learning opportunities for all students. The Disability Resource Center Student Services is the campus office that collaborates with students who have disabilities to provide and/or arrange reasonable accommodations.

If you have, or think you may have, a disability (e.g., mental health, attentional, learning, chronic health, sensory, or physical), please contact DRC at 612-626-1333 or drc@umn.edu to arrange a confidential discussion regarding equitable access and reasonable accommodations.

If you are registered with DS and have a current letter requesting reasonable accommodations, please contact your instructor as early in the semester as possible to discuss how the accommodations will be applied in the course.

For more information, please see the DS website, <https://diversity.umn.edu/disability/>.

Mental Health and Stress Management:

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance and may reduce your ability to participate in daily activities. University of Minnesota services are available to assist you. You can learn more about the broad range of confidential mental health services available on campus via the Student Mental Health Website: <http://www.mentalhealth.umn.edu>.

The Office of Student Affairs at the University of Minnesota:

The Office for Student Affairs provides services, programs, and facilities that advance student success, inspire students to make life-long positive contributions to society, promote an inclusive environment, and enrich the University of Minnesota community.

Units within the Office for Student Affairs include, the Aurora Center for Advocacy & Education, Boynton Health Service, Central Career Initiatives (CCE, CDes, CFANS), Leadership Education and Development – Undergraduate Programs (LEAD-UP), the Office for Fraternity and Sorority Life, the Office for Student Conduct and Academic Integrity, the Office for Student Engagement, the Parent Program, Recreational Sports, Student and Community Relations, the Student Conflict Resolution Center, the Student Parent HELP Center, Student Unions & Activities, University Counseling & Consulting Services, and University Student Legal Service.

For more information, please see the Office of Student Affairs at <http://www.osa.umn.edu/index.html>.

Academic Freedom and Responsibility: *for courses that do not involve students in research:*

Academic freedom is a cornerstone of the University. Within the scope and content of the course as defined by the instructor, it includes the freedom to discuss relevant matters in the classroom. Along with this freedom comes responsibility. Students are encouraged to develop the capacity for critical judgment and to engage in a sustained and independent search for truth. Students are free to take reasoned exception to the views offered in any course of study and to reserve judgment about matters of opinion, but they are responsible for learning the content of any course of study for which they are enrolled.*

OR:

Academic Freedom and Responsibility, for courses that involve students in research

Academic freedom is a cornerstone of the University. Within the scope and content of the course as defined by the instructor, it includes the freedom to discuss relevant matters in the classroom and conduct relevant research. Along with this freedom comes responsibility. Students are encouraged to develop the capacity for critical judgment and to engage in a sustained and independent search for truth. Students are free to take reasoned exception to the views offered in any course of study and to reserve judgment about matters of opinion, but they are responsible for learning the content of any course of study for which they are enrolled.* When conducting research, pertinent institutional approvals must be obtained and the research must be consistent with University policies.

Reports of concerns about academic freedom are taken seriously, and there are individuals and offices available for help. Contact the instructor, the Department Chair, your adviser, the associate dean of the college, (Dr Kristin Anderson, SPH Dean of Student Affairs), or the Vice Provost for Faculty and Academic Affairs in the Office of the Provost.

** Language adapted from the American Association of University Professors "Joint Statement on Rights and Freedoms of Students".*

Student Academic Success Services (SASS): <http://www.sass.umn.edu>:

Students who wish to improve their academic performance may find assistance from Student Academic Support Services. While tutoring and advising are not offered, SASS provides resources such as individual consultations, workshops, and self-help materials.

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