

Course Assessment/Methods of Evaluation:

Assignments ¹	Points	Percentage
Project: Value Stream Mapping Project	100	20%
Exam 1	100	20%
Exam 2	100	20%
HW 1: Article Review	10	2%
HW 2: Process Analysis Tools (Part 1)	15	3%
HW 3: Process Analysis Tools (Part 2)	15	3%
HW 4: Process Analysis Tools (Part 3)	15	3%
HW 5: Determining Distribution Shapes	15	3%
HW 6: Process Capability	15	3%
HW 7: Control Charts (I-MR)	15	3%
HW 8: Control Charts (Xbar-R)	15	3%
HW 9: Control Charts (p, np, c)	15	3%
HW 10: Putting It All Together	15	3%
Participation Exercises (Gemba Walk, 5 S, Red Ball, Standard Work)	40	8%
Test Your Knowledge - Lean Six Sigma Practice Exam	15	3%
Total	500	100%

¹ Assignments are due on Monday at 11:00 pm following the week of assignment, unless otherwise noted. Late assignments will be penalized 5%. Assignments not turned in before the instructor begins grading will receive a zero.

Course Grade Scale (points): A: 450 to 500, B: 400 to 449, C: 350 to 399, F: < 350 points

Linked MPH Program Learning Outcomes:

The student learning outcomes listed above address the following MPH Program PLOs:

- PLO1 - The student will demonstrate mastery in each of the five core knowledge areas in public health: Biostatistics, Epidemiology, Social & Behavioral Sciences, Health Policy and Management, and Environmental Health Sciences.
- PLO2 - The student will demonstrate proficiency in the four core functions of public health, as well as be able to explain the principles and interrelatedness of the ten essential public health services.
- PLO3 - The student will demonstrate proficiency in using multiple informational resources to gather, analyze, apply and report solutions to public health problems with a special emphasis on rural community health.
- PLO4 - The student will demonstrate proficiency in English communication in both oral (public speaking) and written forms as they pertain to conveying key concepts in public health.
- PLO5 - The student will demonstrate proficiency in using computers and other forms of digital technology and media as they pertain to research, office management and public health issues.
- PLO6 - The student will demonstrate independent and critical thinking skills.

Linked MHA Program Learning Outcomes:

The student learning outcomes listed on pp. 1 and 2 address the following MHA Program PLOs:

- PLO A.1 - The student will identify appropriate sources and gather information, effectively and efficiently.
- PLO A.2 - The student will appraise literature and data critically that enhances community health.
- PLO A.3 - The student will develop, understand, and use data from performance, surveillance or monitoring systems.
- PLO A.5 - The student will understand and apply basic statistical methods relevant to public health and health administration practice.
- PLO A.8 - The student will analyze, design, or improve an organizational process, including the use of quality management, process improvement, marketing and information technology principles and tools.
- PLO A.10 - The student will implement a decision-making process that incorporates evidence from a broad analysis that includes uncertainty, risk, stakeholders, and organizational values.
- PLO B.1 - The student will speak and write in a clear, logical, and grammatical manner in formal and informal situations; prepare cogent business presentations; facilitate an effective group process.
- PLO B.2 - The student will receive, process, and respond appropriately to information conveyed by others.
- PLO B.3 - The student will perceive and respond appropriately to the spoken, unspoken, or partly expressed thoughts, feelings, and concerns of others.

Required Textbook:

Brook, Q. (2020). *Lean Six Sigma & Minitab: The complete toolbox guide for business improvement*, 6th ed. Hampshire, UK: OPEX Resources.

Ross, Thomas K. (2014). *Health care quality management: Tools and Applications*. San Francisco, CA: Jossey-Bass.

Recommended Text:

Ross, Thomas K. (2021). *Applying Lean Six Sigma in health care*. Burlington, MA: Jones & Bartlett Learning.

Other Required Readings: As assigned.

Instructor's Note – Ross (2014) was used to build the initial foundation of the course. As I integrated Lean Six Sigma, I added the Brook (2020) as a Lean Six Sigma “cookbook”; the structure of the text walks you through the **D**efine → **M**easure → **A**nalyze → **I**mprove → **C**ontrol steps of DMAIC similarly to set of recipes for a five-course meal. Since it is intended as a guide, content and context are sometimes missing. Throughout this semester, I will be adding both from Dr. Ross's most recent publication.

I've always been a “book guy.” All three of these books are good professional references if you are looking to build a reference library about quality.

Course Content:

Schedule	Assigned Readings
<p><u>Week 1 (Begins Monday, August 23) – Zoom Session</u> <i>Synchronous Session - Tuesday, August 24 from 6:00 – 9:00 pm</i></p> <p><i>Quality in Health Care.</i></p> <ul style="list-style-type: none"> • Quality guru or serial killer? • What is quality in health care? • Quality pioneers. • Improving quality. 	<p>Ross (2014): Chapter 1</p> <p>Article: Institute of Medicine (IOM), Executive Summary: “To Err is Human.” http://www.nap.edu/catalog/9728.html</p>
<p><u>Week 2 (Begins Monday, August 30) – Online</u> <i>Overview of Other Quality Systems</i></p> <ul style="list-style-type: none"> • Overview – Includes Lean Six Sigma • Quality Improvement (QI) in health care • Roadmaps for improvement • Two jobs <p><i>Error and Variation</i></p> <ul style="list-style-type: none"> • Insights into the Medical Decision-Making Process • The Structure-Process-Outcome Paradigm • Extensions to Structure-Process-Outcome <p>Assignment: HW 1. Article review</p>	<p>Walsh & Shortell (2004)</p> <p>Ross (2014): Chapter 2</p>
<p><u>Week 3 (Begins Monday, September 6) – Zoom Session</u> <i>Synchronous Session - Tuesday, September 7 from 6:00– 9:00 pm</i></p> <p><i>Lean</i></p> <ul style="list-style-type: none"> • Lean Overview <p><i>Lean in Health Care</i></p> <ul style="list-style-type: none"> • Lean in Health Care <p><i>Patient Flow in Health Care</i></p> <p><i>Introduction of Process Analysis Tools</i></p> <ul style="list-style-type: none"> • HW 1 due 	<p>Reference: Joint Commission – <i>Doing More with Less: Lean Thinking and Patient Safety in Health Care</i></p> <p>Reference: IHI White Paper (2003)</p>
Multi-Week Assignments	Assigned Readings
<p><i>Process Analysis Tools.</i></p> <ul style="list-style-type: none"> • Exploration of seven process analysis tools: 1) Cause-and-effect diagrams; 2) Check sheets; 3) Run charts; 4) Histograms; 5) Pareto charts; 6) Scatter Diagrams; 7) Stratification diagrams <p>Assignments: HW 2 - 4. <i>These topics will be presented asynchronously by recorded video.</i></p>	<p>Ross (2014): Chapter 4</p>

Schedule	Assigned Readings
<p><u>Week 4 (Begins Monday, September 13) – Online</u> <i>A Brief History of Lean</i></p> <p><i>Change Management Videos</i></p> <p><i>Lean Glossary</i></p> <p>Assignment: Self-Guided Waste Walk Exercise This is a participation exercise turned in as an assignment followed by a separate discussion post to Eliot’s Pick of the Week</p> <p><i>Review of Process Analysis Tools (continued)</i></p> <ul style="list-style-type: none"> • HW 2 due 	
<p><u>Week 5 (Begins Monday, September 20) – Zoom Session</u> <i>Synchronous Session - Tuesday, September 21 from 6:00– 9:00 pm</i></p> <p><i>Value Stream Mapping</i></p> <ul style="list-style-type: none"> • Value Stream Mapping Presentation • Value Stream Process Mapping Videos • Value Stream and Process Mapping Metrics • Karen Martin Videos <p>Assignment: Value Stream Mapping Project</p> <p>Assignment: 5S Exercise</p> <p><i>Sorting Out the Mess</i></p> <p><i>Review of Process Analysis Tools (continued)</i></p> <ul style="list-style-type: none"> • HW 3 due 	<p>Brook (2020)</p>
<p><u>Week 6 (Begins Monday, September 27) – Online</u> <i>Six Sigma</i></p> <ul style="list-style-type: none"> • Six Sigma <p>Assignment: Red Bead Experiment</p> <p><i>Getting Things Done</i></p> <ul style="list-style-type: none"> • DMAIC Revisited • DMAIC (Define) <ul style="list-style-type: none"> ○ Project Charter – Work on Draft ○ House of Quality Exercise • Other Tools <ul style="list-style-type: none"> ○ Kano Analysis ○ CTQ Trees ○ SIPOC • HW 4 and 5S Exercise due 	<p>Brook (2020)</p>

Schedule	Assigned Readings
<p><u>Week 7 (Begins Monday, October 4) – Zoom Session</u> <i>Synchronous Session - Tuesday, October 5 from 6:00– 9:00 pm</i></p> <p><i>Getting Things Done</i></p> <ul style="list-style-type: none"> • DMAIC (Measure) <ul style="list-style-type: none"> ○ Develop Process Measures ○ Collect Process Measures ○ Check the Data Quality ○ Understand Process Behavior – First Pass Analysis & Determining Distribution Shapes ○ Baseline Process Capability and Potential • Tutorial: Determining Distribution Shapes <p>Assignment: HW 5. Determining Distribution Shapes</p> <ul style="list-style-type: none"> • Review Project Charter (Draft) • Exam 1 Review • Red Bead Experiment Due 	<p>Brook (2020)</p>
<p><u>Week 8 (Begins Monday, October 11) – Online</u> <i>Exam 1 (Online Exam)</i> <i>Schedule with ProctorU between 6:00 pm, Monday, October 11 and Thursday, October 14, 2021</i></p> <p><i>Getting Things Done</i></p> <ul style="list-style-type: none"> • DMAIC (Analyze) <ul style="list-style-type: none"> ○ Spaghetti Diagrams ○ Brainstorming ○ 5 Whys • Failure Mode and Effects Analysis <ul style="list-style-type: none"> ○ IHI site ○ IHI video 	<p>Brook (2020)</p> <p>Ross (2014): Chapter 5 and 10</p>
Multi-Week Assignments	Assigned Readings
<p><i>Capability Analysis</i></p> <p>Assignment: HW 6</p> <p><i>Statistical Process Control (SPC)</i></p> <ul style="list-style-type: none"> • Theory of variation and control charts for continuous and discrete variables. <ul style="list-style-type: none"> ▪ Construct and interpret I-MR charts ▪ Construct and interpret Xbar and R charts ▪ Construct and interpret p and np charts ▪ Construct and interpret c and u charts <p>Assignments: HW 7 – 9 <i>These topics will be presented asynchronously by recorded video.</i></p>	<p>Brook (2020)</p> <p>Ross (2014): Chapters 6 - 8</p>

Schedule	Assigned Readings
<p><u>Week 9 (Begins Monday, October 18) – Zoom Session</u> <i>Synchronous Session - Tuesday, October 19 from 6:00– 9:00 pm</i></p> <p><i>Getting Things Done</i></p> <ul style="list-style-type: none"> • DMAIC (Improve) <ul style="list-style-type: none"> ○ Fishbone Diagram ○ FMEA (Quick Overview) & (More Detailed) ○ FMEA Visual Management (John Shook Blog) ○ Visual Board ○ I Love Lucy Counterexample ○ Pilot Studies (Do of Plan-Do-Study-Act) <p>Lean Exercise</p> <ul style="list-style-type: none"> • IHI Triple Aim for Populations • In-class review of control charts • Review Project Charter (Draft) • HW 5 due <p><i>October 20 - Last day to drop courses or withdraw from the university without WP or WF</i></p>	<p>Brook (2020)</p> <p>Ross (2014): Chapter 5 and 10</p>
<p><u>Week 10 (Begins Monday, October 25) – Online</u> <i>Getting Things Done</i></p> <ul style="list-style-type: none"> • DMAIC (Control) <ul style="list-style-type: none"> ○ Standard Work Exercise <p>Assignment – Standard Work Exercise</p> <ul style="list-style-type: none"> • HW 6 due 	<p>Brook (2020)</p>
<p><u>Week 11 (Begins Monday, November 1) – Zoom Session</u> <i>Synchronous Session - Tuesday, November 2 from 6:00– 9:00 pm</i></p> <p>Value Stream Mapping presentations (Session 1 of 3)</p> <ul style="list-style-type: none"> • Value Stream Mapping Project due upon presentation • In-class review of control charts • HW 7 due 	
<p><u>Week 12 (Begins Monday, November 8) – Online</u> <i>LSS Review</i> Assignment: LSS Review Exam</p> <ul style="list-style-type: none"> • HW 8 due <p>Assignment: HW 10. SPC – Back of the Envelope</p>	

Lean Six Sigma Green Belt for Healthcare Exam

Students taking this course will be eligible to sit for the Institute of Industrial and Systems Engineers Lean Six Sigma Green Belt for Healthcare Certification Exam.

Taken in conjunction with Exam 1, the Lean Six Sigma Practice Exam, and the homework assignments, you should be prepared to take the LSS Green Belt in Healthcare Exam.

Contact the Instructor regarding examination requirements and fees if you wish to take the Lean Six Sigma Green Belt for Healthcare Certification Exam.

Students taking the Lean Six Sigma Green Belt for Healthcare Certification Exam have the option of substituting that score for Exam 2.

Schedule	Assigned Readings
<p><u>Week 13 (Begins Monday, November 15) – Zoom Session</u> <i>Synchronous Session - Tuesday, November 16 from 6:00– 9:00 pm</i></p> <p>Value Stream Mapping presentations (Session 2 of 3)</p> <ul style="list-style-type: none"> Value Stream Mapping Project due upon presentation <p>HW 9 Due</p>	
<p><u>Week 14 (Begins Monday, November 22) – Online</u></p> <ul style="list-style-type: none"> HW 10 – SPC – Back of the Envelope Due LSS Review Exam Due 	
<p>Take the Lean Six Sigma Green Belt for Healthcare Exam (Attempt #1)</p>	
<p><u>Week 15 (Begins Monday, November 29) – Zoom Session</u> <i>Synchronous Session - Tuesday, November 30 from 6:00– 9:00 pm</i></p> <p>Value Stream Mapping presentations (Session 3 of 3)</p> <ul style="list-style-type: none"> Value Stream Mapping Project due after presentation In-class review of Exam 2 	
<p><u>Week 16 – Exam 2) – Online</u> <i>Exam 2 (Online Exam)</i> <i>Schedule with ProctorU between 6:00 pm, Monday, December 6 and Thursday, December 9, 2021</i></p>	

Take the Lean Six Sigma Green Belt for Healthcare Exam (Attempt #2)

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Other Class Policies:

Attendance:

Regular or punctual attendance is expected. If a student misses a class or lab, the student is responsible for obtaining any information distributed during those times. Make-ups are possible only under certain instances (labs cannot be made up). Arrangements for any make-ups and/or missed labs should be discussed directly with the instructor for that day's class.

Participation:

Attendance and participation in class is important. Students will be frequently asked to review concepts and online presentations prior to the scheduled class, so that class time can be used for hands-on activities and work on assignments. Students will often be building Excel, Visio, and simulation models with the Instructor.

Academic Honesty:

Any student who commits an act of scholastic dishonesty is subject to discipline. Scholastic dishonesty includes, but is not limited to, cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.

Cheating

Dishonesty of any kind involving examinations, assignments, alteration of records, wrongful possession of examinations, and unpermitted submission of duplicate papers for multiple classes or unauthorized use of keys to examinations is considered cheating. Cheating includes but is not limited to:

- Using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class.
- Falsifying or inventing any information, including citations, on an assigned exercise.
- Helping or attempting to help another in an act of cheating or plagiarism.

Plagiarism

Plagiarism is presenting the words or ideas of another person as if they were your own. Materials, even ideas, borrowed from others necessitate full and complete acknowledgment of the original authors. Offering the work of another as one's own is plagiarism and is unacceptable in the academic community. A lack of adequate recognition constitutes plagiarism, whether it utilizes a few sentences, whole paragraphs, articles, books, audio-visual materials, or even the writing of a fellow student. In addition, the presentation of material gathered, assembled, or formatted by others as one's own is also plagiarism. Because the university takes such misconduct very seriously, the student is urged to carefully read university policies on Misconduct in Research and Other Scholarly Activity 05.00. Examples of plagiarism are:

- Submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another.
- Submitting a work that has been purchased or otherwise obtained from an Internet source or another source.

Incorporating the words or ideas of an author into one's paper without giving the author due credit

Adding/Dropping:

The official deadline for adding and dropping courses is as published in the academic calendar and Graduate Bulletin (typically the day before Census Day). However, students are strongly encouraged to meet with their graduate advisor or the Program Coordinator prior to adding/dropping courses. Movement into and out of classes after the 4th class day requires approval of the Program Director. Students can drop until mid-semester without a WP or WF. Drops after mid-semester require approval of the Dean. Each student is responsible for their own enrollment status with the university.

Disability Accommodations:

UTHSCT abides by Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act, which mandate reasonable accommodations be provided for students with documented disabilities. If you have a disability and may require some type of instructional and/or examination accommodations, please contact me early in the semester so that I can provide or facilitate provision of accommodations you may need. If you have not already done so, you will need to register with the Student Services Office (located on the UT Tyler Campus). You may call 903-566-7079 for more information.

References:

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- Brassard, M., & Ritter, D. (1994). *The memory jogger II: A pocket guide of tools for continuous improvement and effective planning* (2nd ed.). Salem, NH: GOAL/QPC.
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- Clark, D. E., Cushing, B. M., & Bredenberg, C. E. (1998). Monitoring hospital trauma mortality using statistical process control methods. *Journal of the American College of Surgeons*, 186(6), 630-635.
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- McLaughlin, C. P., Johnson, J. K., & Sollecito, W. A. (2012). *Implementing continuous quality improvement: A global casebook*. Sudbury, MA: Jones and Bartlett Publishers.
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Note: The Instructor retains the right to change this syllabus.