A. 37:575:401:B6 Research Methods in Labor Studies

B. Course Description: Overview of data collection and analysis; focus on fundamentals needed to understand the research of others or to collect surveys oneself. The interpretation of common statistics; the use of graphing software; correlation analysis and regression.

C. LSER Objective: Access high-quality historical, qualitative, and quantitative evidence or research

D. Meeting Times: 6:00-10:00 PM, M/W, May 27 – July 3 Meeting Location: LEC 115

- E. Professor: Sheila M. Lawrence, Ph.D.
- F. Email ID: <u>smlawren@rci.rutgers.edu</u> Phone: 973-596-6425 - please call between 9 AM and 9 PM
- G. Office Hours: Prior to (by appointment) and after class

H. Text: Evans and Lindsay, **An Introduction to Six Sigma and Process Improvement**, Thomas/Southwestern, 2005, ISBN 978-0-324-30075-8 (**Assorted handouts for statistics topics**)

I. Grades: Detailed project specifications are under separate cover on Sakai, under Resources under #4. Assignment Related Materials

No.	Grade Component	Weight of Grade	Target Due Dates	
1	Website QA (Individual)	12%	June 10	
2A	Force Field Analysis (Individual)	8	<mark>June 10</mark>	
2B	Survey Design Project (Individual, In-Class)	10%	June 19	
2C	Process Map (Group Project, In-Class)	10%	June 24	
3	Pareto Analysis (Individual)	12%	June 17	
4	Cause and Effect Diagram (Group, In-Class)	4%	June 12	
5	Excel Data Analysis Project (Individual)	40% (20% Part 1; 20% Part 2)	July 3	
6	Guest Lecturers	4%	TBD	
	Total	100%		

Syllabus SMLR 37-575-401Summer 2014

Grading Policy:

Letter Grade	Scores Based on Course Components		
Α	90-100		
B+	85-89		
В	80-84		
C+	75-79		
С	70-74		
D	60-69		
F	< 60		

J. Project Civility: Common courtesy is expected at all times.

K. Attendance: Attendance will be taken in each class. If a student misses/will miss a class, then the student needs to send a courtesy e-mail message to the professor.

L. Study Groups: Forming study groups will facilitate learning by keeping you focused, involved, and current in the course.

M. Projects: It is expected that projects will be done on time and available to be turned in upon request.

N. Communication Devices: No communication devices (cell phones, pagers, etc.) can be used in the classroom. PCs and Macs should be brought for Excel and other in-class work.

O. Communication:

1. Student E-Mail and Phone Numbers:

a. The student has the obligation to insure that the official Rutgers student record reflects his/her valid e-mail address. A student can forward mail from his/her Eden/Pegasus address to a preferred e-mail address. Go to <u>http://www.eden.rutgers.edu/tools.php</u> and click on forwarding. Enter your NetID and PW. Then fill in your preferred e-mail address.

<u>Cautions</u>: Hotmail has problems with e-mails with attachments. Also, some corporations spam e-mails with attachments.

- If you have any problems, please contact your local RUCS helpdesk at help@nbcs.rutgers.edu

b. Students also have the responsibility to then inform the professor of any changes to their phone numbers (day and evening). **Please do not send attachments** to the professor, due to risk of viruses; rather, copy/paste the document into the e-mail message. Please use **"Rutgers Problem Solving Tools & Analysis**" in the Subject section to avoid being spammed.

c. Please check your e-mail regularly, especially on the day of class, to learn if there are any changes in the class schedule, class requirements, or for other general announcements.

d. <u>*Please do not Reply All to the Instructors.*</u> Otherwise, several members of the staff and instructors will receive your correspondence.

2. Sakai

To facilitate class learning, please access and print course documents needed for class from the communication platform known as Sakai. Course documents are posted under Resources.

Quick Start for Sakai:

https://sakai.rutgers.edu/access/content/public/quickmember.html Also, to access the material, you will need your NETID and PW. Sakai website: http://sakai.rutgers.edu/portal

P. University/Campus Closings: 732-932-INFO (New Brunswick); 973-353-1766 (Newark); http://campusstatus.rutgers.edu

Q. Lecture Schedule: The following is an approximate lecture schedule. Project due-dates are tentative until confirmed. Assignments and readings represent the material to be covered during that class session. Students are expected to complete the readings and assignments on the syllabus prior to the class date on which they are listed.

Dates	Six Sigma	Problem Solving Tools	Statistics Topics (Handouts have been posted on Sakai)
May 27	Ch-1 Foundations of Six Sigma: Principles of Quality Management	Overview Excel Checklist; <u>Intro</u> : Pareto Analysis (Assignment <u>#3</u> document on Sakai); Intro: Assignment <u>#5</u> Excel Data Analysis Project	 The Where, Why and How of Data Collection What is Statistics? Tools for Collecting Data Populations, Samples and Sampling Techniques Data Types and Data Measurement Levels [qualitative and quantitative data; time series and cross-sectional data; data measurement levels (nominal, ordinal, interval, ratio)]
May 29	Ch-2 Principles of Six Sigma	Brainstorming; Affinity Diagram	 Graphs, Charts and Tables Frequency Distributions and Histograms; bar charts, pie charts, line charts, and scatter diagrams Describing Data Using Numerical Measures Measures of Center and Location Measures of Variation Using the Mean and Standard Deviation Together Guest Lecturer: Deborah Lewitter
June 3	Ch-3 Project Organization, Selection and Definition;	Intro: Website QA for Assignment <u>#1</u>	Introduction to Sampling Distributions - Sampling Error: What It Is and Why It Happens Sampling Distribution of the Mean
June 5	Excel Workshop	Bring your PCs/Macs	RU/CTAAR Rep, Marcie Anszperger
June 10 Assign. #1 Due; Assign. #2A Due	Ch-4 Process Measurement	Intro: Assignment #2A; Force Field Analysis; In-Class	 Estimating Population Values Point and Confidence Interval Estimates for a Population Mean Determining the Required Sample Size for Estimating the Population Mean (Most important)

June 12 <mark>Assign.</mark> #4 Due	Ch-5 Process Analysis	Intro Assignment #4: Cause and Effect Diagram – In-Class	Introduction to Hypothesis Testing Hypothesis Tests for Means Guest Lecturer – Deborah Lewitter
June 17 <mark>Assign.</mark> <mark>#3 Due</mark> ;	Ch-6 Process Improvement	Intro: Assignment 2B Survey Design and Analysis – In-Class	 Estimation and Hypothesis Testing for Two Population Parameters Estimation for Two Population Means Hypothesis Tests for the Difference between Two Population Means
June 19; <mark>Assign.</mark> #2B Due	Ch-7 Process Control	<u>Intro</u> Assignment <u>#2C</u> : Process Map – In-Class	ANOVA - One Way Analysis of Variance Guest Lecturer – Jane Borden Six Sigma, 6:00-7:00 PM
June 24; <mark>Assign.</mark> #2C Due	Ch-8 Design for Six Sigma	Interrelationship Diagraph	Correlation Analysis - Scatter Plots, Association, and Correlation: Looking at Scatter Plots and Scatter Plot Details Roles for Variables Correlation Conditions Looking at Association Correlation Properties and Tables
June 26	Ch-9 Design for Six Sigma – Optimization and Verification	SIPOC	Regression - Simple Linear Regression Analysis: Residuals "Best Fit" Means Least Squares Correlation and the Line How Big Can Predicted Values Get? Working in Real Units Calculating a Regression Equation Residuals Revisited R ² – The Variation Accounted For How Big Should R ² Be? Assumptions and Conditions Regression: Step-by-Step Reality Check: Is the Regression Reasonable?
July 1			Guest Lecturer: Mike Kamarek, 7 Step Improvement Cycle
July 3 <mark>Assign.</mark> <mark>#5 Due</mark>	Ch-10 Implementing Six Sigma; Catch Up	Voice of the Customer Table; House of Quality	Larry the Golfer 6o Case Study Work Force Focus