

**A. 37:575:403:01 Problem Solving Tools at Work**

**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:** **Thursdays, 3:55 – 6:55 PM**

**E. Meeting Location:** **C/D, LEC (Labor Education Center), Room 133**  
<http://rumaps.rutgers.edu/location/labor-education-center>,

**F. Professor:** Sheila M. Lawrence, Ph.D.

**G. Email ID:** [smlawren@scarletmail.rutgers.edu](mailto:smlawren@scarletmail.rutgers.edu)

**H. Phone:** 973-596-6425 - please call between 9 AM and 9 P.M. (Please speak slowly, state the course #. Please spell your name, and give your phone number.) Please follow up with an e-mail message.

**I. Office Hours:** **In the Carey Library, prior to class from 5:00 – 6:00 PM**

**J. Text:** (edition 1 or 2 is fine) Evans and Lindsay, **An Introduction to Six Sigma and Process Improvement**, Cengage, 2015, 978-1-133-60458-7 (**Assorted handouts for statistics topics**); **No access code is needed.**

**K. Special Needs** – Rutgers, the State University of New Jersey abides by the Americans with Disabilities Act of 1990, the Americans with Disabilities Act Amendments (ADAA) of 2008, and Sections 504 and 508 which mandate reasonable accommodations be provided for qualified students with disabilities and accessibility of online information. If you have a disability and may require some type of instructional and/or examination accommodation, please contact me early in the semester so that I can provide or facilitate in providing accommodations you may need. If you have not already done so, you will need to register with the Office of Disability Services, the designated office on campus to provide services and administer exams with accommodations for students with disabilities. Here are the particulars:

[Lucy Stone Hall](#), Livingston Campus, 54 Joyce Kilmer Ave., Suite A145, Piscataway, NJ 08854-8045

**E-mail Address:** [dsoffice@rci.rutgers.edu](mailto:dsoffice@rci.rutgers.edu) **Phone:** (848) 445-6800 • **Fax:** (732) 445-3388

I look forward to talking with you soon to learn how I may be helpful in enhancing your academic success in this course.

**L. Assessments:** This class is hands-on and features assessment of projects and Take Home Exams, rather than a lecture course that uses exams to assess learning. Course assessment is calculated as a weighted average of the following projects:

**M. Grades:** Detailed project specifications are under separate cover. Please post final documents onto the Assignments Folder on Sakai. **We have no final exam during Final Week.**

**N. 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.

<b>Target Dates</b>	<b>Six Sigma Topic</b>	<b>Problem Solving Tools*</b>	<b>Statistics Topics (Materials have been posted on Sakai.)</b>
Sept. 3	Ch-1 Foundations of Six Sigma: Principles of Quality Management	Overview Excel Checklist; <u>Intro: #A</u> Pareto Analysis - Data  <u>Intro: #B</u> College Data Analysis	Starbucks Case Study; The Where, Why and How of Data Collection  <u>Assign States</u>
Sept. 10	Ch-2 Principles of Six Sigma	<u>Intro: #C</u> Leadership Self-Assessment	Describing Data Using Numerical Measures <u>Writing Tips</u>
Sept. 17	Ch-3 Project Organization, Selection and Definition	<u>Intro: #D</u> Survey Design	<b>Normal Distribution</b>
<b>Sept. 24</b>	Excel Workshop	Bring your PCs/Macs;	RU/CTAAR Rep, <b>Marcie Anszperger</b> Download the Excel file on Sakai/Resources/Guests/CTAAR Excel File
Oct. 1	Ch-4 Process Measurement	<u>Intro: #E</u> Website QA (Quality Assurance)	Confidence Intervals and Sampling Size Determination
Oct. 8	Ch-5 Process Analysis	<u>Intro #F</u> Cause and Effect Diagram	Introduction to Hypothesis Testing - Hypothesis Tests for Means
Oct. 15	Ch-6 Process Improvement	<u>Intro: #G</u> <b>Interrelationship Diagram</b>	<b>Guest Lecturer on Deming – Deborah Lewitter</b>  Estimation and Hypothesis Testing for Two Population Parameters

Oct. 22	Ch-7 Process Control	<u>Intro</u> : #H Process Map	ANOVA - One Way Analysis of Variance
Oct. 29	Ch-8 Design for Six Sigma	<u>Intro</u> : I Force Field Analysis	Correlation Analysis
Nov. 5	Ch-9 Design for Six Sigma – Optimization and Verification		Regression
Nov. 12			<b>College Data Analysis Excel Project Status</b>
Nov. 19	Ch-10 Implementing Six Sigma	Allocation Project; House of Quality	
Nov. 26	No Class – Happy Thanksgiving		Guest – Jim August on Problem Solving
Dec. 3			Larry the Golfer 6 $\sigma$ Case Study; Work Force Focus; Six Sigma PPTs; 10 Implementation Myths of Six Sigma; 10 Tips for Finishing a Six Sigma Project Successfully
Dec. 10			Catch Up

**We have no final exam during Finals Week.**

**Note: The College Data Analyses projects (Part I and Part II II) need to be uploaded to the Assignment Folder 0.5 hour prior to the start of their deadlines; no paper copy is needed. All other projects done outside of class need to be submitted to the Drop Box 0.5 hour prior to their deadline, and paper copies needs to be submitted at the beginning of class, sharp.**

Order of Introduction	Assignment	Group vs Individual	In-Class or At-Home	Weight of Grade	Target Due Dates
<b>A</b>	Pareto Analysis	Individual	Start In-Class	12%	<b>Nov. 5</b>
<b>B-1</b>	College Data Analysis * Part I 20%	Individual	<b>At Home</b>	40%	<b>Dec. 3</b>
<b>C</b>	Leadership Self-Assessment	Individual	Start In-Class	6%	<b>Oct. 1</b>
<b>D</b>	Survey Design Project	Individual	Start In-Class	10%	<b>Nov. 12</b>
<b>E</b>	Website QA	Individual	<b>At Home</b>	10%	<b>Nov. 19</b>
<b>F</b>	Cause and Effect Diagram	<i>Group</i>	Complete In-Class	6%	<b>Oct. 8</b>
<b>B-2</b>	College Data Analysis * Part II 20%	Individual	<b>At Home</b>	40%	<b>Dec. 3</b>
<b>G</b>	Interrelationship Diagram Project	<i>Group</i>	Complete In-Class	6%	<b>Oct. 15</b>
<b>H</b>	Process Map	<i>Group</i>	Complete In-Class	6%	<b>Oct. 22</b>
<b>I</b>	Force Field Analysis	<i>Group</i>	Complete In-Class	4%	<b>Oct. 29</b>
	<b>Total</b>			<b>100%</b>	

**\* 20% Part I and 20% Part II**

Assignment Sorted by Target Due Date	Target Due Date
Leadership Self-Assessment	Oct. 1
Cause and Effect Diagram	Oct. 8
Interrelationship Diagram Project	Oct. 15
Process Map	Oct. 22
Force Field Analysis	Oct. 29
Pareto Analysis	Nov. 5
Survey Design Project	Nov. 12
Website QA	Nov. 19
College Data Analysis * Part I 20%	Dec. 3
College Data Analysis * Part II 20%	Dec. 3

**P. Attendance:** Attendance is of critical importance. It is essential to keep up with the class material. 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.

**Q. Required:** Statistical software in Excel 2007 (or higher). Reading assignments must be completed prior to each lecture. **Communication Devices:** No communication devices (cell phones, palm pilots, beepers, pagers, etc.) can be used in the classroom.

**R. Assessment:**

**Posting of Grades:** please check MyRutgers for your final grades.

**Assessment Policy:**

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

**Note:** The thresholds for final letter grades will be re-scaled if a conventional standard seems unreasonable.

**S. Academic Integrity:** All students are responsible for locating, reading, and abiding by the University Policy on Academic Integrity for Undergraduate and Graduate Students. The policy is available on-line at <http://cat.rutgers.edu/integrity/policy.html>

**T. Recommendations:** Requests for recommendations must be made in writing after completion of the course.

**U. Assignments:** All Assignments are posted on Sakai under Resources. Assignments must be handed in on time in their entirety.

**Penalty:** 10% for every grade component is submitted late, with a **max of one week**.

Submissions must be complete; no partial assignments can be submitted.

Once the Assignments are returned to the students, then late submissions cannot be accepted in order to maintain fairness for all students.

**Note: Project due dates are tentative until confirmed.**

**V. Communication:**

**1. NETID Needed**

Rutgers uses the Sakai system. In order to use this system, you must have a NETID and PW. A NETID is

an account on one of the main systems at Rutgers (Pegasus, Eden, Andromeda or RCI).

- **If you have a NETID**, you can currently ensure that you will be able to login to the system.

- **If you do not have a NETID**, please use the following page to attain one:

<http://netid.rutgers.edu/>

- **If you have any problems**, please contact your local RUCS Help Desk. You can reach them at [help@nbc.rutgers.edu](mailto:help@nbc.rutgers.edu) or 732-445-Help

**2. Sakai**

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

**Quick Start for Sakai:**

<https://sakai.rutgers.edu/access/content/public/quickmember.html>

**Sakai website:**

<http://sakai.rutgers.edu/portal>

If you do not see this course listed, then the site is likely in the “More” dropdown box to the right of your tabs.

You can rearrange the order of your sites or hide sites from previous semesters by using the Preference tool in My Workspace and clicking on the “Customize Tabs” action button.

**W. Student E-Mail and Phone Numbers:**

a. A student can forward mail from his/her Rutgers e-mail address to a preferred e-mail address. Go to <http://www.eden.rutgers.edu/tools.php> and click on forwarding. Enter your NetID and PW. Then fill in your preferred e-mail address.

**Cautions:** 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](mailto: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 use “**37:575:403**” in the Subject section to avoid being spammed. **Please sign your full name in all e-mail correspondence.**

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

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.

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

**Y. Classroom Etiquette:** Common courtesy is expected at all times.

**Z1. Parking Impacts:** Special events may impact parking.

**Z2. University/Campus Closings:** 732-932-INFO (New Brunswick); <http://campusstatus.rutgers.edu>

## Z2. Excel and Data Analysis

- Additional suggestions:

Purchase Microsoft Office and Windows software at University discount prices on

- <http://software.rutgers.edu>
- Log in with your RU NetID

- On the panel on the right, select MS Software for Personal Use, scroll down to view the Microsoft offerings
- You can pay with a personal check or credit card

For PC: Install the Excel Analysis Pack for additional statistical and analytical tools

- From the Office Button, select Excel Options and Add-Ins
- In the inactive application section, select Analysis Tool Pack and hit GO and OK to install
- Use the Analysis Tool Pack from the Data Ribbon, Data Analysis option

The Analysis Tool Pack includes histograms, regressions, sampling data, Fourier analysis, et. al, and also includes several randomization functions, such as RAND and RANDBETWEEN