

Note: This is an in-person (in classroom) course utilizing the Canvas learning management system. This is not an online class.

Syllabus for Semester **Spring 2020**

Department of Labor Studies and Employment Relations - Rutgers University

A. 37:575:403:01 & 38:578:503:01, Problem Solving Tools at Work

B. Course Description: This course provides an overview of problem solving tools and techniques. It focuses on the fundamentals needed to understand the research of others. Included will be the use and interpretation of Excel and Data Analysis.

C. Course Objectives (37:575:403:01)

Labor Studies and Employment Relations Department:

- Formulate, evaluate and communicate conclusions and inferences from quantitative information (Goal 12).

Rutgers Undergraduate Core Curriculum:

- Quantitative & formal reasoning (Goal W)

School of Management and Labor Relations:

- Demonstrate an ability to collect, analyze and synthesize information to make logical and informed decisions impacting the workplace. Use evidence to evaluate hypotheses, theories and approaches to workplace issues (Goal II).

Course Objective: (38:578:503:01)

School of Management and Labor Relations Learning Objective:

- Demonstrate an ability to collect, analyze and synthesize information to make logical and informed decisions impacting the workplace. Use evidence to evaluate hypotheses, theories and approaches to workplace issues (Goal III).

D. Meeting Times: **Thursdays, 7:20 – 10:00 PM**

Meeting Location: C/D, LEC (Labor Education Center), **Room 130-131**

<http://rumaps.rutgers.edu/location/labor-education-center>

E. Professor: Sheila M. Lawrence, Ph.D.

Email ID: smlawren@smlr.rutgers.edu

F. Office Hours: In our classroom, prior to class, roughly from **6:00-7:00 PM** and after class, or by appointment; if you attend my other class's office hours, please e-mail me so that I am best prepared;

G. 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.

H. 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**)

I. Computer/Software/Apps/Accessories Requirement

- Adobe Flash – latest version (you will need it to view videos) (Links to an external site.)
- Access to the internet
- Microsoft Word
- Webcam (recommended)
- Headphones (highly recommended)
- Reliable computer
- Basic Computer Specifications for CanvasLinks to an external site.

Excel: *Excel Work can be done at the library or the computer labs.*
Only Excel 2016 (either PC or Mac) can be used in the class. It is free while you are a student at Rutgers. Further details are in Part **Y** below.

J. Technical Support

If you need technical assistance at any time during the course or to report a problem with Canvas:

- Visit the Canvas Student TutorialLinks to an external site.
- Contact Rutgers IT Help DeskLinks to an external site. 877-361-1134, accessible 24 hours a day, 7 days a week.
- Visit the Rutgers Canvas Student orientationLinks to an external site.

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 **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. 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. Reading assignments must be completed prior to each lecture. Assignments are to be uploaded to Canvas 0.5 hour on their due dates.

| Week # | Tentative Dates (per guest lecturers' availability) | Six Sigma Topic | Problem Solving Tools | Statistics Topics and Guests (Tentative Pending Guests' Schedule) |
|--------|---|--|--|--|
| 1 | Jan. 23 | Ch-1 Foundations of Six Sigma: Principles of Quality Management | Overview <u>Intro: #A</u> Pareto Analysis (Intro) <u>Intro: #B</u> Leadership Self Assessment | Starbucks Case Study - Data Types & Levels of Measurement <u>Assignment of States for College Data Analysis Project</u> |
| 2 | Jan. 30 | Ch-2 Principles of Six Sigma <i>For this class:</i> Read PPTs "Pareto Made Simple" on Canvas, Project A, Pareto Project | <u>Intro: #A</u> Pareto Analysis (cont) <u>Intro: #C</u> College Data Analysis (CDA) (Intro) | Excel Checklist; Note: Mac users need access to Excel 2016/Data Analysis. |
| 3 | Feb. 06 | Ch-3 Project Organization, Selection and Definition Writing Tips | <u>Intro: #D</u> Survey Design Project | Charting |
| 4 | Feb. 13 | <u>For this class:</u> Review the 2 YouTube videos on Pivot Tables, under the Excel Resources Module of the course's Canvas site. Then please download your CDA file, with Part 1A completed, as it will be used in the workshop | | M-1- Guest – Marcie A. – Excel Workshop; - LinkedIn Learning |

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|----|----------------|---|--|--|
| 5 | Feb. 20 | Ch-4 Process Measurement | Intro: #C College Data Analysis (CDA) (cont) Intro: #E Cause and Effect Diagram | M-2 - Guest – Andrea Watson on Google Sheets Descriptive Statistics |
| 6 | Feb. 27 | Ch-5 Process Analysis | Intro: #F Website Quality Assurance (QA) | Confidence Interval |
| 7 | Mar. 5 | | Intro: #J - Deming Project; Intro: #K – Benchmarking | M-3 - Guest: Mike K. on Baldrige Award; Deming |
| 8 | Mar. 12 | Ch-6 Process Improvement | Intro: #G Process Map | Correlation |
| | Mar. 19 | Spring Break | | No class! |
| 9 | Mar. 26 | Ch-7 Process Control | Intro: #H Interrelationship Diagram | Regression M-4 Guest – Marta P. on Project Management |
| 10 | Apr. 02 | Ch-8 Design for Six Sigma | Intro: #I Force Field Analysis <u>Please bring your draft CDA for my review next week.</u> | Catch Up on Excel |
| 11 | Apr. 09 | Ch-9 Design for Six Sigma – Optimization and Verification | '-- | Excel Project – Open Session |
| 12 | Apr. 16 | | Intro: #L House of Quality | M-5 Guest – Ken A. on Six Sigma |
| 13 | Apr. 23 | '-- | '-- | Time for Completing CTAAR Survey by cell phone M-6 Guest: Mike A.: 7 Step Improvement Cycle Workshop |

| | | | | |
|----|---------|------------------------------|--|---|
| 14 | Apr. 30 | Ch-10 Implementing Six Sigma | Catch Up; <u>Intro:</u> #M: Course Reflection | Time for Completing CTAAR Survey by cell phone Six Sigma PPTs - 10 Implementation Myths of Six Sigma; - 10 Tips for Finishing a Six Sigma Project Successfully; - Larry the Golfer - Six Sigma Case Study; Starbucks |
|----|---------|------------------------------|--|---|

Note: The table below is assignment for the *undergraduate class (37:575:403)*.

*** Note: All projects are to be uploaded to the Assignments Folder and are to be submitted in paper form per the respective due date.**

In-Class assignments can be done in paper or via software. Please insure their readability.

| Project Code | Project Name | Group vs Individual | In-Class or at Home | Weight | Week Due | Target Due Dates |
|--------------|--|---------------------|---------------------|-------------|----------|------------------|
| B | Leadership Self-Assessment | Individual | Start In-Class | 60 | 3 | 02-06-2019 |
| A | Pareto Analysis | Individual | Start In-Class | 100 | 5 | 02-20-2019 |
| E | Cause and Effect Diagram | Group | Start In-Class | 60 | 6 | 02-21-2020 |
| D | Survey Design Project | Individual | Start In-Class | 100 | 7 | 03-05-2020 |
| J | Deming Project | | | 0 | | |
| F | Website QA | Individual | At Home | 100 | 9 | 03-26-2020 |
| G | Process Map | Group | In-Class | 60 | 10 | 04-02-2020 |
| K | Benchmarking | | | 0 | | |
| H | Interrelationship Diagraph Project | Group | In-Class | 60 | 11 | 04-09-2020 |
| I | Force Field Analysis | Group | In-Class | 60 | 12 | 04-16-2020 |
| L | House of Quality | | | 0 | | |
| M | Course Reflection | Individual | In-Class | 20 | 14 | 04-30-2020 |
| N | Guests (as scheduled) | Individual | In-Class | 80 | 13 | 04-23-2020 |
| C | College Data Analysis * | Individual | Start In-Class | 300 | 14 | 04-30-2020 |
| | Total Points | | | 1000 | | |
| | * No paper copy needs to be submitted. | | | | | |
| | There is no final exam during Finals Week. | | | | | |

Note: The table below is assignment for the *graduate class* (38:578:503).

| Graduate: Sorted by Target Due Dates | | | | | | |
|---|-----------------------------------|----------------------------|----------------------------|---------------|-----------------|-------------------------|
| * Note: All projects are to be uploaded to the Assignments Folder and are to be submitted in paper form per the respective due date. | | | | | | |
| In-Class assignments can be done in paper or via software. Please insure their readability. | | | | | | |
| Project Code | Project Name | Group vs Individual | In-Class or at Home | Weight | Week Due | Target Due Dates |
| B | Leadership Self-Assessment | Individual | Start In-Class | 60 | 3 | 02-06-2019 |
| A | Pareto Analysis | Individual | Start In-Class | 100 | 5 | 02-20-2019 |
| E | Cause and Effect Diagram | Group | Start In-Class | 60 | 6 | 02-21-2020 |
| D | Survey Design Project | Individual | Start In-Class | 100 | 7 | 03-05-2020 |
| J | Deming Project | Group | Start In-Class | 50 | 8 | 03-12-2020 |
| F | Website QA | Individual | At Home | 100 | 9 | 03-26-2020 |
| G | Process Map | Group | In-Class | 60 | 10 | 04-02-2020 |
| K | Benchmarking | Individual | Start In-Class | 100 | 11 | 04-09-2020 |
| H | Interrelationship Diagram Project | Group | In-Class | 60 | 11 | 04-09-2020 |
| I | Force Field Analysis | Group | In-Class | 60 | 12 | 04-16-2020 |
| L | House of Quality | Group | Start In-Class | 50 | 13 | 04-23-2020 |
| M | Course Reflection | Individual | In-Class | 20 | 14 | 04-30-2020 |
| N | Guests (as scheduled) | Individual | In-Class | 80 | 13 | 04-23-2020 |
| C | College Data Analysis * | Individual | Start In-Class | 300 | 14 | 04-30-2020 |
| | Total Points | | | 1200 | | |
| * No paper copy needs to be submitted. | | | | | | |
| There is no final exam during Finals Week. | | | | | | |

N. 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

O. Required: 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.

P. Assessment Policy:

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

| 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.

Q. 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>

Laptop and Cell Phone Policy - Students are permitted to bring and use laptop computers in class, for taking notes and viewing class readings. However, please **do not engage** in laptop-related activities that may distract other students. Students should refrain from texting while in class. **Points may be deducted from the grades** of students who consistently violate the foregoing policy.

Recordings - Very important: Students are **not** permitted to videotape or otherwise record any classroom lecture or activity, without prior express consent and authorization by the Instructor.

R. Recommendations: Requests for a recommendation must be made in writing after completion of the course. Please be courteous and do not provide my e-mail address without my consent as I will need pertinent background information.

S. Take Home Assignments: The College Data Analysis project must be handed in on time in its entirety. The submission must be complete; no partial assignment can be submitted.

T. Student E-Mail and Phone Numbers:

a. Please note that it is [Rutgers IT policy](#) that you use your Rutgers.edu email for all Rutgers related course correspondence.

b. Students, also, have the responsibility to then inform the professor of any changes to their phone numbers (day and evening).

c. Please check your e-mail and the course Canvas site 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. Announcements will be communicated through Canvas which will trigger email notification to your Rutgers.edu email. Additionally, you may download and install the Canvas Student App for your mobile devices so you can be notified via the app. To download/install the app refer to: [Canvas Student App iOS](#), [Canvas Student App Android](#).

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

V. Classroom Etiquette: Common courtesy is expected at all times.

W. Parking Impacts: Special events may impact parking.

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

Y. Excel 2016 and Data Analysis

To access free Microsoft Office, including Excel while a Rutgers student, please click go to the Rutgers Software Portal:

<https://oit.rutgers.edu/university-software-portal>

Go to the link above and select the University Software Portal link. On the page that follows, select Microsoft Software for Students. You will be prompted to log in using your NetId. Then follow the instructions for downloading and installing.

Excel Work can be done at the library or the computer labs. If you do not have a help option, then your version of Excel, Excel Light, or the student version, as well as open source software and Numbers, Google Drive or Google Sheets do not have the Analysis Toolpak/Data Analysis.

- PC users: 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

- **MAC Users - Microsoft Excel 2016 Analysis ToolPak**

<https://support.office.com/en-sg/article/Load-the-Analysis-ToolPak-in-Excel-2016-for-Mac-617afc33-4af8-4530-b132-7b4e938890d0?ui=en-US&rs=en-SG&ad=SG&fromAR=1>

To download the Analysis ToolPak Add In: Go to Tools at the top toolbar in Excel; at the bottom of the list, please select "Excel Add-ins"; then select Analysis ToolPak" and click OK. Confirm by selecting Data; then Data Analysis.

Z. Student-Wellness Services:

Just In Case Web App

<http://codu.co/cee05e>

Access helpful mental health information and resources for yourself or a friend in a mental health crisis on your smartphone or tablet and easily contact CAPS or RUPD.

Counseling, ADAP & Psychiatric Services (CAPS)

(848) 932-7884 / 17 Senior Street, New Brunswick, NJ 08901/ rhscaps.rutgers.edu/

CAPS is a University mental health support service that includes counseling, alcohol and other drug assistance, and psychiatric services staffed by a team of professional within Rutgers Health services to support students' efforts to succeed at Rutgers University. CAPS offers a variety of services that include: individual therapy, group therapy and workshops, crisis intervention, referral to specialists in the community and consultation and collaboration with campus partners.

Violence Prevention & Victim Assistance (VPVA)

(848) 932-1181 / 3 Bartlett Street, New Brunswick, NJ 08901 / vpva.rutgers.edu/

The Office for Violence Prevention and Victim Assistance provides confidential crisis intervention, counseling and advocacy for victims of sexual and relationship violence and stalking to students, staff and faculty. To reach staff during office hours when the university is open or to reach an advocate after hours, call 848-932-1181.

Disability Services

(848) 445-6800 / Lucy Stone Hall, Suite A145, Livingston Campus, 54 Joyce Kilmer Avenue, Piscataway, NJ 08854 / <https://ods.rutgers.edu/>

The Office of Disability Services works with students with a documented disability to determine the eligibility of reasonable accommodations, facilitates and coordinates those accommodations when applicable, and lastly engages with the Rutgers community at large to provide and connect students to appropriate resources.

Scarlet Listeners

(732) 247-5555 / <http://www.scarletlisteners.com/>

Free and confidential peer counseling and referral hotline, providing a comforting and supportive safe space.

Note: This course outline/syllabus is subject to change at the discretion of the instructor.