

Note: This is an online (Remote Asynchronous) class

Syllabus for Semester Spring 2024

Department of Labor Studies and Employment Relations - Rutgers University

A. 37:575:403:90 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. Professor: Sheila M. Lawrence, Ph.D.

Email ID: smlawren@smlr.rutgers.edu

D1. Course Objectives (37:575:403:90)

Labor Studies and Employment Relations Department:

Goal II) Quantitative, Qualitative and Analytical Skills

Apply appropriate quantitative and qualitative methods for research workplace issues.

- Formulate, evaluate, and communicate conclusions and inferences from quantitative information

Goal III) Research Skills

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.

- Use evidence-based analysis to appraise the validity of various hypotheses, theories, and approaches to workplace issues

Note: The principles of diversity, equity and inclusion are, also, being addressed.

E. Course Delivery Format and Virtual Office Hours & Virtual Drop-In Sessions

This course runs from **January 16, 2024 through April 29, 2024**. It is delivered *entirely* online through the Learning Management System, Canvas. There will be no Face-to-Face, in-person classroom sessions, except for an optional Virtual Drop In or Office Hour Webex sessions <https://rutgers.webex.com/meet/smlawren>

The course is delivered in *asynchronous* mode. This means the learning activities and communication takes place outside of real-time. You do not have to log in at any specific scheduled time; you log in at your convenience. However, there may be times, if you are working in groups on an assignment, you would need to set up a “live” session such as via Webex.

Note: Even though you do not need to log in at any specific time, **you are required to adhere to all course work due dates.**

If you are new to Canvas, review the tutorials in Course Tools Tutorials, in the Modules section of the course Canvas site.

Virtual Drop-In Session

Wednesdays, 5:00 PM to 6 PM (Eastern Standard Time) through WebEx. If you are new to WebEx, please review the tutorials on Course Tools Tutorials. <https://rutgers.webex.com/meet/smlawren>

For the virtual drop-in sessions, project and Excel questions, brainstorming ideas on issues at Rutgers or at your jobs or internships, etc. are welcome.

Although the virtual drop-in sessions are not mandatory, I highly encourage you to attend.

Virtual Office Hour Session

I am also available for a private or group WebEx office hour sessions as needed, for example, with regard to Excel/Data Analysis. <https://rutgers.webex.com/meet/smlawren>

F. 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.

G. Resources for Student Success: The faculty and staff at Rutgers are committed to your success. Students who are successful tend to seek out resources that enable them to excel academically, maintain their health and wellness, prepare for future careers, navigate college life and finances, and connect with the RU community. Resources that can help you succeed and connect with the Rutgers community can be found at success.rutgers.edu, and nearly all services and resources that are typically provided in-person are now available remotely.

H1. Computer/Software/Apps/Accessories Requirements

- Access to the internet
- Microsoft Word
- Webcam (recommended)
- Headphones (highly recommended)
- Reliable computer
- Basic Computer Specifications for Canvas

Excel: 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 S below.

H2. Technical Support

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

- Visit the Canvas Student Tutorial in Canvas, Module A, Technical Support
- Visit the Rutgers Canvas Student orientation in Module A

Technical support for Canvas has transitioned from Teaching and Learning with Technology (TLT) to the Office of Information Technology (OIT).

Helpdesk: Rutgers Office of Information and Technology

Email: <https://it.rutgers.edu/help-support>

Call: 833-OIT-HELP

I. 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.

J. Course Content:

| Week # and Dates | Six Sigma Topic Readings |
|----------------------------------|--|
| Week 1 (January 16 – 21) | Ch-1 Foundations of Six Sigma: Principles of Quality Management |
| Week 2 (January 22 - 28) | Ch-2 Principles of Six Sigma |
| Week 3 (January 29 – February 4) | Ch-3 Project Organization, Selection, and Definition |
| Week 4 (February 5 – 11) | Ch-4 Process Measurement |
| Week 5 (February 12 – 18) | Ch-5 Process Analysis |
| Week 6 (February 19 - 25) | Ch-6 Process Improvement |
| Week 7 (February 26 – March 03) | Ch-7 Process Control |
| Week 8 (March 04 – 08) | Ch-8 Design for Six Sigma |
| Spring Break: (March 09 - 17) | Enjoy! |
| Week 9 (March 18 – 24) | Ch-9 Design for Six Sigma – Optimization and Verification |
| Week 10 (March 25 – 31) | Ch-10 Implementing Six Sigma |
| Week 11 (April 01 – 07) | Meet the Lean Six Sigma Expert |
| Week 12 (April 08 – 14) | Pivot Table Workshop |
| Week 13 (April 15 – 21) | Deming; Multi-Voting (Bonus) |
| Week 14 (April 22 – 28) | Workforce Focus |

K. Coursework Schedule: This class is hands-on and features an assessment of projects, rather than a lecture course that uses exams to assess learning. Course assessment is calculated as a weighted average of the course projects.

Per Canvas, project due-dates are tentative until confirmed. Assignments and readings/videos represent the material to be covered during that class session. Students are expected to complete the readings/videos.

| <i>Chapter</i> | <i>Read Text Chapter and Watch Videos -> Project</i> | <i>Points</i> | <i>Week Due</i> |
|----------------|---|---------------|-----------------|
| 0 | LinkedIn Learning | 2 | 1 |
| 0 | Academic Integrity Contract | 4 | 1 |
| 0 | Student Profile | 2 | 1 |
| 1 | <i>Discussion Week 1: Meet Your Learning Community</i> | 25 | 1 |
| 1 | Leadership Self-Assessment | 100 | 2 |
| 2 | <i>Discussion Week 2: Examples of "Waste in Your Life" (Comment on Classmates' Posts)</i> | 25 | 2 |
| 3 | <i>Discussion Week 3: Root Cause Analysis (Comment on Classmates' Posts)</i> | 25 | 3 |
| 3 | Team (of 1-3) Survey Design Project | 100 | 4 |
| 2 | Pareto Analysis | 100 | 5 |
| 5 | <i>Discussion Week 5: The "5Ys" and "5W2H" (Comment on Classmates' Posts)</i> | 25 | 5 |
| 4 | Website QA (Quality Assurance) | 100 | 6 |
| 6 | <i>Discussion Week 6: Poka Yokes (Comment on Classmates' Posts)</i> | 25 | 6 |
| 5 | Excel CDA: Descriptive Statistics/Confidence Interval | 25 | 7 |
| 7 | <i>Discussion Week 7: Thoughts about the Course at the Midpoint</i> | 25 | 7 |
| 6 | Team (of 1-3) Cause and Effect Diagram | 100 | 8 |
| 7 | Excel CDA: Charting | 25 | 8 |
| 7 | Team (of 1-3) Process Map | 60 | 9 |
| 8 | Excel CDA: Correlation | 25 | 9 |
| 8 | Team (of 1-3) Interrelationship Diagram Project | 100 | 10 |
| 11 | <i>Discussion Week 11: Lean Six Sigma Black Belt (Submit 1-2 Questions; Comment on Classmates' Posts).</i> | 25 | 11 |
| 9 | Team (of 1-3) Force Field Analysis | 100 | 11 |
| 12 | Excel CDA: Pivot Table | 25 | 12 |
| 11 | <i>Discussion Week 11: Impact of the Course (Comment on Classmates' Posts)</i> | 25 | 13 |
| 13 | Deming | 100 | 13 |
| 13 | Bonus Project on Multi-Voting (15 points maximum) | 0 | 14 |
| -- | Total | 1,271 | -- |

L. Assessment Policy:

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

| Letter Grade | Scores Based on Course Components |
|--------------|-----------------------------------|
| A | 90-100 |
| B+ | 85-89.99 |
| B | 80-84.99 |
| C+ | 75-79.99 |
| C | 70-74.99 |
| D | 60-69.99 |
| F | < 60 |

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

M. Academic Integrity: All students are responsible for locating, reading, and abiding by the University Policy on Academic Integrity for undergraduate students. The policy is available online at <http://nbacademicintegrity.rutgers.edu/>

N. Recommendations: Requests for a recommendation letter 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.

O. Take Home Assignments: Each project must be handed in on time in its entirety. The submission must be complete; no partial assignments can be submitted.

P. 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) from the listing in the Student Profile.

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](#).

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

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

S. Excel 2016+ and Data Analysis

To determine what version of Excel you have: On Excel, select File, then Account to determine your version of Excel.

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.

Excel 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>

Students need to go to the link below and select the University Software Portal link. On the page that follows, they select Microsoft Software for Students. They will be prompted to log in using their NetId. Then follow the instructions for downloading and installing.

- ✓ Excel 2016 or higher must be used in the course.
- ✓ To download the Analysis ToolPak:
 - for Macs - <https://www.youtube.com/watch?v=B6OfD-nXFUk>
 - for PCs - <https://www.youtube.com/watch?v=BFksczTOxsM>

If you do not have a help option on your Excel, then your version of Excel, Excel Light, or The student version, as well as open-sourced software and Numbers, Google Drive or Google Sheets, then you do not have the Analysis Toolpak/Data Analysis.

If you are unable to download the Analysis ToolPak, either:

1. Please contact OIT to see if the Analysis ToolPak is available on your MacBook, or is memory an issue? Their number is 833-OIT-HELP.
2. If that does not work out, contact 833-OIT-HELP about the virtual lab so that you can remotely control a Rutgers desktop in order to access Excel 2016 or higher.

T. Student-Wellness Services: UNIVERSITY SERVICES

Although some of these offices remain closed to in-person visits, all remain accessible virtually. We encourage students to continue to use these resources during this semester of remote learning.

Covid - If you report a positive Covid result, please contact Rutgers Student Health at (848-932-7403).

The following links provide students with access to information on how to receive extra support for (a) victim and mental health services, (b) academics, and (c) financial assistance (mainly emergencies).
<https://smlr.rutgers.edu/academic-programs/current-students>

| Service | Description | Contact Information |
|---|---|---|
| Student Accommodations | If you are a student in need of accommodations, please register with the Office of Disability Services in order to initiate the accommodations process. Please present your letter of accommodation to your instructor during the first week of the semester. Please note that accommodations are not retroactive. | (848) 445-6800 Lucy Stone Hall, Suite A 145, Livingston Campus, 54 Joyce Kilmer Avenue, Piscataway, NJ 08854 https://ods.rutgers.edu/ |
| Just In Case Web App | 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. | http://health.rutgers.edu/medical-counseling-services/counseling/caps-next-step/ |
| Counseling, ADAP & Psychiatric Services (CAPS) | 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. | (848) 932-7884 17 Senior Street, New Brunswick, NJ 08901 www.rhscaps.rutgers.edu/ Medical Services: http://health.rutgers.edu/medical-counseling-services/medical/ Counseling Services: http://health.rutgers.edu/medical-counseling-services/counseling/ |
| Violence Prevention & Victim Assistance (VPVA) | 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. | (848) 932-1181 3 Bartlett Street New Brunswick, NJ 08901 www.vpva.rutgers.edu/ |
| Scarlet Listeners | Free and confidential peer counseling and referral hotline, providing a comforting and supportive safe space. | (732) 247-5555 scarlet.listeners@gmail.com https://scarletlisteners.wixsite.com/scarletlisteners |

Last Updated: 7-26-2023

Rutgers Student Food Pantry

Syllabus_Problem_Solving_Tools_403 Spring 2024, S. M. Lawrence – v1

<http://ruoffcampus.rutgers.edu/food/>

Graduate Student Association Food Bank

<http://gsa.rutgers.edu/grad-resources/rutgers-student-food-pantry/>

pantryRUN is the **campus food pantry**

<https://myrun.newark.rutgers.edu/pantryrun>

Note: There is no final exam during Finals Week.

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

You are encouraged to retain a copy of the syllabus for future purposes (e.g., for transfer credits, career options, graduate school prerequisites.)