People Analytics
Course #: 37:533:354
(Section 90, 3 credits)
Spring 2026

Instructor:	Rania Elanwer, Ph.D.
Email:	re308@.rutgers.edu
Course Meeting:	Asynchronous
Students Hours:	**I will hold student hours each week in my personal ZOOM room**: - **Day and Time**: Wednesdays from 9:30am- 10:30am https://rutgers.zoom.us/my/re308 *If the available time does not work for you, no worries. Send me an email to set up an alternative time.
Course Website:	Canvas.rutgers.edu (please regularly check Canvas for syllabus, course info, and other announcements)
Required Textbook	**The Data-Driven Leader: A Powerful Approach to Delivering Measurable Business Impact Through People Analytics**, Jenny Dearborn & David Swanson, Wiley, ISBN 978-1119382201. RESIST THE TEMPTATION TO GET THE "AUDIBLE" VERSION. IT DOES NOT INCLUDE ACCESS TO SOME VERY IMPORTANT CHARTS & TABLES. https://www.amazon.com/Data-Driven-Leader-Delivering-Measurable/dp/1119382203/ref=tmm_hrd_swatch_0?_encoding=UTF8&qid=&sr=
Required Software:	**You are required to use Microsoft Office (specifically Word and Excel) for projects and data analysis**. Students can access these tools for free through the University Software Portal: https://software.rutgers.edu/info/login/ Once you have Microsoft Excel, please enable the Data Analysis ToolPak. The process is straightforward, and you can find guidance here: https://support.microsoft.com/en-us/office/load-the-analysis-toolpak-in-excel-6a63e598-cd6d-42e3-9317-6b40ba1a66b4
Recommended Materials:	**Predictive HR Analytics (2nd ed.), Martin Edwards & Kristen Edwards, Kogan Page, ISBN 9780749484446.**

Course Description and Objectives

People analytics is a data-driven approach aimed at enhancing people-related decisions to promote both individual and organizational success. While the critical role of people in organizational success has always been acknowledged, many business leaders continue to make key workforce decisions based on intuition or past experience. However, today's leaders can significantly improve their decision-making processes by leveraging the unique opportunities that data analytics offers.

Throughout the course, students will be trained to apply analytics in a structured project plan process. This process is organized into six essential steps: understanding the current business problem, collecting data relevant to the business issue, preparing the data for analysis, creating analytics models to predict future business situations, evaluating the findings, and communicating these findings through clear, professional writing and visualizations. These steps will provide a comprehensive framework for solving HR problems using data-driven methods.

In addition, students will master the use of the Qualtrics tool for building and administering surveys. They will learn how to design effective surveys, manage survey data, and analyze the data collected using various methods. The course will also cover different visualization techniques, teaching students how to present data effectively. This will enhance their ability to communicate findings visually to stakeholders, ensuring that the insights derived from the data are easily understood and actionable.

The major objectives of this course are

1- Apply appropriate quantitative and qualitative methods to investigate workplace issues and HR challenges.
2- Formulate, evaluate, and communicate conclusions and inferences from data-driven analyses.
3- Analyze HR-related data using quantitative methods, including predictive modeling, to support decision-making.
4- Integrate qualitative and quantitative approaches to derive actionable insights for organizational problems.
5- Develop HR functional capabilities by leveraging analytical insights to design, implement, and evaluate HR practices, including employee selection, performance management, training and development, compensation, and workforce planning.
6- Effectively communicate analytical findings through professional reports, visualizations, and presentations to stakeholders.
7- Design, administer, and analyze survey data using tools such as Qualtrics to inform HR decisions.

SMLR Learning Objectives: People Analytics is designed to specifically address the following SMLR learning goals:

I.   **Written & Oral Communication:**
     Communicate effectively at a level and in modes appropriate to an entry level professional.
   - Communicate complex ideas effectively, in standard written English
   - Analyze and synthesize information and ideas from multiple sources to generate new insights
   - Produce quality research papers with proper convention of attribution/citation
   - Produce high quality executive summaries
   - Make an argument using contemporary and/or historical evidence

- Present ideas and arguments in a logical and effective way

II. Quantitative Skills:
Apply appropriate quantitative and qualitative methods for research workplace issues.
- Formulate, evaluate, and communicate conclusions and inferences from quantitative information
- Apply quantitative methods to analyze data for HR decision making including cost-benefit analyses, ROI, etc.
- Apply qualitative methods appropriately, alone and in combination with quantitative methods

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.
- Employ current technologies to access information, to conduct research, and to communicate findings
- Analyze and synthesize information and ideas from multiple sources to generate new insights
- Assess and critique relevant evidence and research findings
- Access high-quality historical, qualitative, and quantitative evidence or research
- Use evidence-based analysis to appraise the validity of various hypotheses, theories, and approaches to workplace issues

VI. Applications:
Demonstrate an understanding of how to apply knowledge necessary for effective work performance.
- Apply concepts and substantive institutional knowledge, to understanding contemporary developments related to work
- Understand the legal, regulatory and ethical issues related to their field
- Develop human resource management functional capabilities used to select, motivate, and develop workers
- Understand the internal and external alignment and measurement of human resource practices

VII. Professional Development:
Demonstrate an ability to interact with and influence others in a professional manner, and to effectively present ideas and recommendations.
- Develop effective presentation skills appropriate for different settings and audiences
- Develop career management skills to navigate one's career
- Understand cultural differences and how to work in a multicultural environment
- Work productively in teams, in social networks, and on an individual basis
- Develop cultural agility competencies
- Demonstrate lifelong personal & professional development skills

Spring 2026 Course Structure

I will have class materials/lectures posted online weekly. Each week, I expect you to complete the assigned readings, viewings, and/or assignments.

Basis of Evaluation

1. Group Projects (average of 4 projects)	**50%**
2. Case Study Discussions	**25%**
3. Final Group Project and Presentation	**25%**

Grades will be assigned according to the traditional cut-offs used at Rutgers:

90-100% = A
85-89.9% =B+
80-84.9% = B
75-79.9% = C+
70-74.9% = C
< 70%   = F

Group Projects (50%)

Throughout the semester, you will be working in groups to complete four projects. Each project consists of one of the analytics process we will be developing throughout the semester. By the end of semester all four projects will lead to a final analytics proposal project that you will develop with your group. I will provide coaching as you complete your projects, but you will need to plan to spend time beyond normal class materials to work on each project.

Scope of the Projects:

➢ **Project1: Phase 1 (Business understanding).** During this phase, you will collaborate with your group to conduct a literature review of scientific articles related to a topic that will be assigned to you in class. Although the topic will be provided, each group must use this topic to create a related business case to solve an HR related problem. The goal of this project is to comprehend and demonstrate the process required to identify the business problem, stakeholders involved in problem resolution, and to develop a goal for the analytics project. Each group will submit a literature review that review articles related to the assigned topic and a proposal with a summary of the background of the identified business/performance issue by trying to answer the following three questions (1) what the problem is, (2) Why that happened, (3) How this issue will be resolved. The goal of this project is to help you learn and demonstrate the following skills: locating relevant scientific information, understanding all aspects related to the business problem, and clearly stating your initial expectations, including research questions and hypotheses.

➢ **Project 2: Phase 2 (Data Collection)**. In this project you will be utilizing the Qualtrics survey software to collect data related to your project. You will identify the target participants and the sample size. You will also prepare the survey questions and administer the survey to your participants.

➢ **Project 3: Phase 3 (Data understanding)**. In this project, your group will focus on exploring and understanding the dataset. You will examine data structure, variables, quality issues, and initial patterns, and make preliminary modifications as needed to prepare the data for analysis. The deliverable is a short report describing your data understanding process, including key findings, identified data issues, and the visualizations used to support exploration and decision-making.

➢ **Project 4: Phase 4 (Data Cleaning):** Building on Project 3, your group will systematically clean and transform the dataset to make it analysis-ready. This includes handling missing values, correcting inconsistencies, and applying appropriate transformations. The deliverable is a report documenting the cleaning and transformation steps, supported by visualizations that demonstrate how data quality was assessed and improved.

➢ **Project 4: Phase 4 (Data Modeling).** In this step, you will collaborate with your group to build and test a regression-based predictive model using the prepared dataset from Phase 4. Each group will be required to submit a report detailing the process used to develop and evaluate the model. The report must include the visualization and the evaluation methods used to support the modeling process.

Final Group Project and Presentation (25%)

In this final project, your group will use the cleaned dataset from Project 4 to develop and evaluate a linear regression model addressing an HR-related problem. You will apply appropriate modeling, visualization, and evaluation techniques to assess model performance and interpret results.

Deliverables:

Final Report: A written report focused on the modeling phase, documenting model development, assumptions, evaluation methods, results, and supporting visualizations.

Oral Presentation: A comprehensive presentation that synthesizes the entire project

Case Study Discussions (25%)

One of the key components of our learning experience will be the evaluation through case study discussions. These discussions are designed to deepen your understanding of real-world applications of the concepts we cover in class. Students are required to read the assigned case study by the due date. Each case study is carefully selected to illustrate important topics and challenges relevant to our course. Thoroughly read the assigned case study and be prepared to participate in the discussion board to reflect on the key issues, potential solutions, and implications presented in the case. Your participation will be evaluated based on the quality and relevance of your contributions, your ability to engage with the material, and your interaction with peers.

Throughout the semester, approximately seven case studies will be assigned. Students will be placed into groups, with each group responsible for facilitating one case study. The facilitating group will lead the class discussion, reflect on peers' thoughts and analysis to the case study, engage with classmates to reflect on the central themes and insights of the case.

Late Submissions

I expect students to complete all case studies on time. Late submissions will not be accepted. However, each student is granted one freebie—no questions asked—to account for unforeseen circumstances. This freebie allows one case study to be submitted up to 3 days late with no penalty.

Because projects build on one another, staying on schedule is essential to your success in this course. Delays can disrupt your progress and impact subsequent projects. Accordingly, for project submissions only, the maximum score will be adjusted as follows:

- Within 3 days after the deadline: maximum score of 90%
- Within 7 days after the deadline: maximum score of 80%
- More than 7 days after the deadline: maximum score of 70%

Important Class Policy

Group Work Assessment
Active participation to all group assignments is required. Please Note: Group projects will include a peer assessment component. Students who do not contribute equally to the project, as compared to their group members, may receive a reduced grade or no points for the project.

Use of AI in This Course
Students are permitted to use AI applications in this course only as a learning aid. Appropriate uses include generating ideas, identifying relevant resources, clarifying concepts, or practicing

problem-solving. However, AI tools must not be used to complete assignments, write reports, or perform analyses on your behalf.

All submitted work must represent your own understanding, reasoning, and original effort, in full accordance with Rutgers' academic integrity standards. Any misuse of AI that replaces, rather than supports, your learning will be considered a violation of these standards.

Requests for Reconsidering Grade
If you have questions about the evaluation or grade that your work earned, you may ask <u>in writing</u> to have it reviewed again and the grade reconsidered. You have seven days from the time you receive the grade to make the request. No reconsideration of grades or scoring will occur after seven days have elapsed. To do this, prepare a written statement (one or two paragraphs) explaining what you believe to be erroneous about the grade. **Please recognize that a new grade could be lower or higher than the original grade.**

Other Important, Miscellaneous Things

Students with disabilities
Students requesting accommodations for disabilities should contact the Office of Disability Services to determine his/her Coordinator. The Coordinator will then provide documentation to the student. Upon review and approval, the student must then provide this documentation to the instructor. Please refer to the Office of Disability Services for Students for more detail regarding this policy: https://ods.rutgers.edu/ .

APA style – this is necessary for all written work in this course!

You are required to use APA style for your written deliverables and presentations (where applicable). This is most relevant for formatting, in-text citations, reference lists, tables, and figures. It is imperative that you familiarize yourself with the requirements throughout the semester (i.e., don't wait until the first assignment is due to figure this out).

Briefly, all projects must be:
- **Typed**
- **Contain 1-inch margins all around the document**
- **Use 12pt. Times New Roman font**

Here are some websites that you should consult for further assistance (more materials are located on our Canvas website):
- https://owl.purdue.edu/owl/research_and_citation/apa_style/apa_formatting_and_style_guide/general_format.html
- https://owl.purdue.edu/owl/research_and_citation/conducting_research/evaluating_sources_of_information/where_to_begin.html

☐ https://apastyle.apa.org/

Media Policy

The recording and transmission of classroom lectures and discussions by students is prohibited without written permission from the class instructor and all students in the class as well as guest speakers have been informed that audio/video recording may occur. Recording of lectures or class presentations is solely authorized for the purposes of individual or group study with other students enrolled in the same class. Permission to allow the recording is not a transfer of any copyrights in the recording.

The recording may not be reproduced or uploaded to publicly accessible web environments. You cannot share any part of any recording without express written permission by all parties potentially affected by the recording.

Recordings, course materials, and lecture notes may not be exchanged or distributed for commercial purposes, for compensation, or for any other purpose other than study by students enrolled in the class. Public distribution of such materials may constitute copyright infringement in violation of federal or state law, or University policy. Violation of this policy may subject a student to disciplinary action under the University's Standards of Conduct.

*Exception:

It is not a violation of this policy for a student determined by the Learning Needs and Evaluation Center ("LNEC") to be entitled to educational accommodations, to exercise any rights protected under Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, including needed recording or adaptations of classroom lectures or materials for personal research and study. Such recordings of lectures or class presentations is solely authorized for the purposes of individual or group study with other students enrolled in the same class. Permission to allow the recording is not a transfer of any copyrights in the recording. The restrictions on third party web and commercial distribution apply in such cases.

Destruction of Approved Recordings:

Students must destroy recordings at the end of the semester in which they are enrolled in the class unless they receive the instructor's written permission to retain them or are entitled to retain them as an LNEC-authorized accommodation.

Academic Integrity

Rutgers University takes academic dishonesty very seriously. By enrolling in this course, you assume responsibility for familiarizing yourself with the Academic Integrity Policy and the possible penalties (including suspension and expulsion) for violating the policy. As per the policy, all suspected violations will be reported to the Office of Student Conduct.

Academic dishonesty includes (but is not limited to):

- ☐ cheating
- ☐ plagiarism
- ☐ aiding others in committing a violation or allowing others to use your work
- ☐ failure to cite sources correctly
- ☐ fabrication
- ☐ using another person's ideas or words without attribution
- ☐ re-using a previous assignment
- ☐ unauthorized collaboration
- ☐ sabotaging another student's work

If in doubt, please consult the instructor. Please review the Academic Integrity Policy at: https://nbacademicintegrity.rutgers.edu/.

Rutgers Diversity Statement

The Division of Student Affairs works to create an environment of inclusion which respects and affirms the inherent dignity, value, and uniqueness of all individuals, communities, and perspectives. Our practices reflect awareness and understanding of the complexity of identity and the increasing interconnectedness of our world. It is our responsibility to promote and maintain a community of compassion, embracing the rich dimensions of diversity, and facilitating opportunities for understanding and the expression of both individual and shared truths.

Spring 2026 Course Schedule

Week 1	01/20	**Course Welcome and Introduction**	**Review:** Syllabus
Week 2	01/26	**HR Analytics** - What is big data - What are analytics (descriptive, predictive and prescriptive) - Why we need analytics - The integration between HR and analytics	**Read:** - Marler, J. H., & Boudreau, J. W. (2017) - The analytical journey Provost, F., & Fawcett, T. (2013). - Margherita, A. (2022) - (Case study 1)
Week 3	02/02	**Introduction to Machine learning** **Analytics as a project plan**	Review materials posted on Canvas

Week 4	02/09	**The analytics Process Phase 1: Business understanding:** • What is business understanding? • How to connect organizational problem to testable hypotheses • How to form a data mining question? **Writing a literature review** • (Conducting a systematic review) **Instructions for Project1: Phase1(Business Understanding)**	Watch: "Understanding Research Articles" [https://www.youtube.com/watch?v=-SA_J-BnuwI] 5 minutes **Read:** - (Case study 2) - (Jhangiani et al., 2019) Ch. 2 (section 7, 8,9,10,11)
Week 5	02/16	**Troubleshoot Project 1 Phase 1: Data Understanding Phase.** Bring your questions and concerns	Continue working on Project 1
Week 6	02/23	**The analytics Process Phase 2: Data collection:** • Data collection steps • Methods of collecting data. • Sampling and sampling methods • How to use the Qualtrics survey platform • How to make decisions about final survey items	**Read:** - Strategies for collecting data (the needs assessment book ch.3 p.51-74) - Qualtrics Tutorials - (Case study 3)
Week 7	03/02	**The analytics Process Phase 2:Data Collection Constructing a survey (Part 1)** • How to identify and attract sample respondents • How to develop recruitment protocol • How to organize and format final survey in Qualtrics • Survey administration **Instructions for Project2: Phase2(Data Collection)**	**Read:** - Ch. 7 (section 34-35) - Carpenter et al. (2016) pp. 4-8,11-14 - Ferris et al. (2008) pp. 3 & 4 See also: Anderson & Gerbing (1991)
Week 8	03/09	**Troubleshoot Project 2 Phase 2: Data Collection Phase.** Bring your questions and concerns	Continue to work on Project 2 **Read:** - (Case study 4)
	03/16	**Spring Break**	
Week 9	03/23	**The analytics Process Phase 3: Data understanding** • Data and data summary • Qualitative Vs Quantitative data • Basic statistical concepts review **Instructions for Project3: Phase3(Data Understanding)**	Review materials posted on Canvas **Read:** - (Case study 5)
Week 10	03/30	**Troubleshoot Project Phase 3: Data Understanding Phase.** Bring your questions and concerns	Continue to work on Project 3
Week 11	04/06	**The analytics Process Phase 4: Data Cleaning** • How to review and clean raw dataset • How to run initial descriptive statistics • How to evaluate variable distributions	Review materials posted on Canvas **Read:** - (Case study 6)
Week 12	04/13	**Instructions for Project4: Phase4 (Data Cleaning)** Troubleshoot Project #4: bring your questions and concerns.	Continue to work on Project 4

Week 13	04/20	**The analytics Process Phase 5: Build a Predictive Model** • How to create a predictive model **Instructions for Final Project**	**Read:** - (Case study 7)
Week 14	04/27	**Final project: Troubleshoot final project:** bring your questions and concerns.	Continue working on Final project
Week 15	05/04	**Submit Final project and presentation**	**Due:** Submit Final project and presentation to Canvas