

People Analytics
Course #: 37:533:354
(Section 01, 3 credits)
Fall 2024

Instructor:	Rania Elanwer, Ph.D.
Email:	re308@connect.rutgers.edu
Course Meeting:	In Person
Student Hours:	I will hold student hours each week in my personal ZOOM room: - Day and Time: Fridays from 11:30am-12:30pm https://rutgers.zoom.us/my/re308 *If the available time do 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:	We will use an open access (i.e., free) textbook to support this course. Jhangiani, R., Chiang, I.A., Cuttler, C., & Leighton, D. C. (2019). Research Methods in Psychology. https://kpu.pressbooks.pub/psychmethods4e/ ISBN-13: 978-1085976923 ISBN-10: 1085976920

<p>Required Software:</p>	<p>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/</p> <p>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</p>
<p>Recommended Materials:</p>	<p>Predictive HR Analytics (2nd ed.), Martin Edwards & Kristen Edwards, Kogan Page, ISBN 9780749484446. [Paperback @\$35; Kindle (can be viewed on laptops/computers/phones)=approximately \$33] https://www.amazon.com/Predictive-HR-Analytics-Mastering-Metric-ebook/dp/B07NZ7GT64/ref=sr_1_2?crid=1J5WIDLF2W9U5&keywords=predictive+hr+analytics&qid=1566402422&s=books&prefix=predictive+hr+%2Caps%2C133&sr=1-2</p>

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.

Fall 2024 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 5 projects)	= 500 points	50%
2. Case Study Discussions	= 100	10%
3. Quizzes (5 Quizzes)	= 150 Points	15%
4. Final Group Project and Presentations	= 150 Points	15%
5. Participation/Attendance	= 100 Points	10%

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 (5) – 500 points total (50%)

Throughout the semester, you will be working in groups to complete five projects. Each project consists of one of the analytics process we will be developing throughout the semester. By the end of semester all five 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 preparation).** In this step, you will collaborate with your group to modify, clean, and transform the data in preparation for analysis. During this phase, each group will be required to submit a report detailing the process they used to clean the data. The report must include the visualization methods used by the group to aid in the data cleaning process.
- **Project 4: Phase 4 (Data Analysis).** During this phase, each team must analyze the data collected from the survey and test the hypotheses the group developed earlier in the semester by performing a comprehensive statistical analysis of the data.
- **Project 5: Phase 5 (Data Visualization and Reporting).** During this phase, each team will prepare a proposal that includes HR-related recommendations for the process that the organization should use to solve the identified problem based on results obtained from the analytics model. The deliverable for this assignment is a written **final report that includes all five phases** that the group used to complete the analytics project. The report should include appropriate visualizations that demonstrate the analytics process and results.

Final Group Project Presentation - 150 points total (15%)

At the end of the semester each group will deliver a presentation about the analytics project. The presentation should contain a brief summary to the five phases of the analytics process and The HR relevant recommendations to the steps the organization should apply to solve the performance problem.

You must submit your projects through Canvas. All submitted assignments will be evaluated via **Turnitin**. Please see policies regarding integrity breaches for more information about consequences of cheating and plagiarism.

Quizzes – 150 points (15%)

Throughout the semester, you will complete Five quizzes. Each quiz aims to assess your understanding of essential skills, research methods, and analytics discussed in the course. Students are required to complete four quizzes, while the fifth quiz is a bonus worth 30 points, contributing to the final quiz score. In other words, the fifth quiz is optional and serves as a bonus.

Case Study Discussions – 100 points (10%)

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 before coming to class. Each case study is carefully selected to illustrate important topics and challenges relevant to our course. Thoroughly read the assigned case study prior to the class meeting and reflect on the key issues, potential solutions, and implications presented in the case.

During class, actively participate in discussion related to the case study posted on Canvas. Share your insights, ask questions, and engage with your classmates' contributions. Be prepared to discuss your analysis and viewpoints on the case study, backed by course concepts and your own critical thinking. The objectives of these discussions are to enhance your analytical and critical thinking skills, apply theoretical knowledge to practical, real-world scenarios, improve your ability to articulate and defend your ideas in a collaborative setting, and foster a deeper understanding of the subject matter through peer discussion and diverse perspectives. 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.

Late Submissions

I expect students to complete all assignments on time. I do not accept late submissions. However, I will grant one FREEBIE, no questions asked (things happen). This means that you can submit ONE assignment (project) up to 3 days late, with no penalty.

If you have an excused reason for submitting late, I encourage you to contact me in advance of the due date to discuss a possible accommodation.

Requests for Reconsidering a Grade

If you have questions about the evaluation or grade that your work earned, you may ask in writing 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/>.

Fall 2024 Course Schedule

Week 1	09/03	Course Welcome and Introduction HR Analytics <ul style="list-style-type: none"> • What is big data • What are analytics (descriptive, predictive and prescriptive) • Why we need analytics • The integration between HR and analytics 	Review: Syllabus Read: - Marler, J. H., & Boudreau, J. W. (2017) - The analytical journey Provost, F., & Fawcett, T. (2013). - Margherita, A. (2022)
Week 2	09/09	<ul style="list-style-type: none"> • Introduction to Machine learning • Analytics as a project plan (the CRISP Model) 	Read: - Altemeyer, (2019) - Li, J. & Herd, A. M. (2017). - King, K. (2016). - (Case study 1)
Week 3	09/16	The analytics Process Phase 1: Business understanding: <ul style="list-style-type: none"> • What is business understanding? • How to connect organizational problem to testable hypotheses • How to form a data mining question? Writing a literature review <ul style="list-style-type: none"> • (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 1- (Jhangiani et al., 2019) Ch. 2 (section 7, 8,9,10,11) 2- MARS guidelines p. 7, 8 (lit search items to include) 3- Mackey et al. (2021) p. 5-8 (example lit search) Due: Quiz 1
Week 4	09/23	The analytics Process Phase 2: Data collection: <ul style="list-style-type: none"> • Data collection steps • Methods of collecting data. • Sampling and sampling methods We will continue working on project 1: phase 1.	Read: - Strategies for collecting data (the needs assessment book ch.3 p.51-74) - (Case study 2)
Week 5	09/30	The analytics Process Phase 2:Data Collection Constructing a survey (Part 1) <ul style="list-style-type: none"> • How to use the Qualtrics survey platform • How to conduct substantive/content validation survey • How to analyze substantive validity data • How to make decisions about final survey items 	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 6	10/07	The analytics Process Phase 2:Data Collection. Constructing a survey (Part 2) <ul style="list-style-type: none"> • How to identify and attract sample respondents 	Due: Project 1: Business understanding Read:

		<ul style="list-style-type: none"> How to develop recruitment protocol <p>Instructions for Project2: Phase2(Data Collection)</p>	Qualtrics Tutorials (Part 1) (Case study 3)
Week 7	10/14	<p>The analytics Process Phase 2:Data Collection. Conduct a Survey (Part 3) How to organize and format final survey in Qualtrics</p>	<p>Read: Qualtrics Tutorials (Part 2) Due: Quiz 2</p>
Week 8	10/21	<p>The analytics Process Phase 2:Data Collection. Conduct a Survey (Part 4) Survey administration</p>	<p>Read: Qualtrics Tutorials (Part 3) (Case study 4)</p>
Week 9	10/28	<p>The analytics Process Phase 3: Data understanding</p> <ul style="list-style-type: none"> Data and data summary Qualitative Vs Quantitative data Basic statistical concepts review <p>Instructions for Project3: Phase3(Data Understanding)</p>	<p>Review materials posted on Canvas</p> <p>Due: Project2: Phase2(Data Collection)</p>
Week 10	11/04	<p>Instructions for Project3: Phase3(Data Understanding) Troubleshoot Project #3: bring your questions and concerns.</p>	<p>Due: Quiz 3 Read: (Case study 5)</p>
Week 11	11/11	<p>The analytics Process Phase 4: Data Preparation</p> <ul style="list-style-type: none"> How to review and clean raw dataset How to run initial descriptive statistics How to evaluate variable distributions <p>Instructions for Project 4: Phase 4 (Data preparation)</p>	<p>Due: Project3: Phase3(Data Understanding)</p> <p>Read: Review materials posted on Canvas</p>
Week 12	11/18	<p>Project 4: Phase 4 (Data preparation) Troubleshoot Project #4: bring your questions and concerns.</p>	<p>Due: Quiz 4 Read: (Case study 6)</p>
Week 13	11/25	<p>The analytics Process Phase5: Analyze Survey Results (Part 1)</p> <ul style="list-style-type: none"> How to evaluate reliability and validity evidence How to conduct hypothesis testing T-Test <p>Instructions for Project 5: Phase 5 (Data Analysis and Reporting)</p>	<p>Read: -Bennett & Robinson (2000) pp. 6-8 -Ferris et al. (2008) 6-8, 10-1 Textbook (Case study 7)</p>
Week 14	12/02	<p>Data visualization</p> <ul style="list-style-type: none"> Data visualization methods and techniques <p>Project 5: Phase 5 (Data Analysis and Reporting) Troubleshoot Project #5: bring your questions and concerns.</p>	<p>Due: Quiz 5</p>
Week 15	12/09	<p>Final project: Troubleshoot final project: bring your questions and concerns.</p>	Continue working on Final project
Final Exam Week	12/16	<p>Submit Final project and presentation</p>	<p>Due: Submit Final project and presentation to Canvas</p>