DSO 599 – Applying Analytics to Human Capital in Business

Professor
Jeff Higgins

Email
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When
Wednesday 6:30 pm - 9:30 pm (1/9 - 3/4/23)

Office
TBD

Units
1.5 Units

WHY TAKE THIS COURSE?

Students seeking to apply analytic tools, metrics and methods to the complex world of people data to solve business problems faced by real organizations that quantify and show ROI impact.

COURSE OBJECTIVES

- Develop/Apply problem solving skills using quantitative methods to perform root cause analysis
- Answer complex human capital business questions using data
- Understand new metrics in HR and human capital that impact and link to financial results
- Learn to transform data into intelligence for insight
- Build a data model + business case that tells a story

KEY CONCEPTS

- Key performance metrics, forecasting, linking data to show financial impact
- People data sources, pain points and value creation
- Transforming data into business intelligence
- Interpreting analytic results, statistics vs. financial models
- Visualization, presentation + storytelling with data

COURSE DESCRIPTION

This course provides an introduction and practical application of analytics to human capital business issues. The course features case studies and emerging practices to analyze, predict and resolve questions and challenges for organizations of all sizes today. The course will feature using simple and advanced predictive analytic methods and models, as well as basic financial modeling and costing techniques essential to quantify/capture return on investment (ROI). Students will use software tools to enable data analysis, modeling and statistical as well as financial analysis to solve workforce oriented business problems.

This practical analytic techniques and technologies in this course can be used to create a winning business case and story using data that links to business financial impact and ROI for virtually any human capital data set.

USCMarshall
School of Business

DSO 599 Applying Analytics to Human Capital in Business
Semester Year (Spring 2023)
3 hours per week (1.5 unit class)

Instructor:	*Jeff Higgins*
Office:	*USC DSO___ location*
Class:	*Wednesday, 6:30 PM – 9:30 PM*
Phone:	*(714) 612-9897*
Email:	*Jeff.higgins@usc.edu*
	Jeff.higgins@hcminst.com
Office Hours	TBD; 1hr per week

COURSE DESCRIPTION

This course provides students with an introduction to and practical application in HR analytics also known as human capital analytics or people analytics. The course will educate/train students on emerging practices and techniques to acquire data, analyze, predict and resolve questions and challenges confronting organizations of all sizes and sectors today. Students will learn about human capital measurement and metrics, predictive analytic tools and methods, human capital reporting standards, frequently used metrics, core analytic study methods to acquire, analyze, predict and create a data driven solution/business case with advanced visualization and storytelling. Students will use data to solve common business problems faced by real organizations, performing root cause analysis, using simple and advanced predictive analytic models as well as basic financial modeling and costing techniques essential to quantify/capture return on investment (ROI). Students will use software tools to enable data analysis, modeling and statistical as well as financial analysis to solve workforce oriented business problems.

The course will feature and use the case study method to facilitate learning and practical application in both lecture and exercise format. Case studies will include a wide variety of real-world industries and companies including Starbucks, Jet Blue Airways, Public Storage, Union Bank, UPS, Target Stores, Southern California Edison and others.
This course serves to help students not only use advanced analytic techniques and technologies but to create a winning business case and story using data that links to business financial impact and ROI.

COURSE OBJECTIVES

Upon successful completion of this course, students will be able to:

1. Solve problems using quantitative methods to analyze, segment and perform root cause analysis for complex business questions about human capital using HR, operational and financial data (case studies, group exercises, tested)
2. Describe and reference ISO and SEC data and metric standards in human capital as well application and impact upon financial and business outcomes with real-world HR and talent issues and available data in organizations today. (tested)
3. Segment, test, and apply simple and advanced metrics and visuals to transform data into intelligence for insight and prediction (case studies, group exercises, team project)

4. Utilize data visualization (PowerBI) to build data models that quantify insights, answer questions, tell stories and predict future ROI (case studies, group discussion, team project)
5. Calculate HR related metrics that quantify human capital to analyze, test and model insights and solutions to HR and workforce issues (case studies, exercises, team project)
6. Utilize statistics together with financial modeling to show business impact and quantify ROI (tested)
7. Build a business case with data in a compelling story that management will accept (case studies, tested)

COURSE MATERIALS (see # references in each week page 4-5)

The course materials will utilize the following:

Required Readings (free to download):

1. Article; Building a Business Case: A How-To Guide, Higgins, 2018
2. White paper report: Valuing human capital, Deutsche Bank Investment Research, 2019
3. Global Standards Document: ISO #30414 Human Capital Reporting Guidelines for human capital reporting for internal and external stakeholders, 2018
4. Linking Human Capital to Business Performance, 2012

Required Tools and Online Resources;
5. **Microsoft Power BI** will be used for visualization, prediction and modeling as well as DAX formulas and machine learning. Microsoft PowerBI is free to download. Free updates provided by Microsoft.
6. **Microsoft PowerBI with Excel** will be used for data manipulation, integration and testing to connect to analysis and visualization tools i.e. Power BI and Excel.
7. **Blackboard** – selected readings and case studies.
8. **Gaughan & Tiberti Library** – selected readings.

Optional: PowerBI visualization software bootcamp (2 hours online), 1 week prior to class start

GRADING

Assignments	*Points*	*% of Overall Grade*
Class Participation	15	5%
Quiz	14	5%
Homework	55	20%
Team Project	100	35%
Final Exam	100	35%
TOTAL	284	100%

CLASS PARTICIPATION
Contributing comments, thoughts, hypotheses, solutions, and good questions, presented in a professional manner consistent with the environment in large highly professional organizations today. Comments and input should be Relevant, Responsive, demonstrate analytical thinking and analysis, value-add and most importantly clarity and conciseness.

Students will be critiqued on 'best practices' in communication clarity, 'as if' they were presenting to organization top management in any given class sessions.

HOMEWORK

Homework will be assigned each week for required readings and at least 1 actual company case study for individuals and teams to evaluate and interpret in class as homework. Students may read the case studies in advance (usually 3-6 pages), but it is not required as the case study is reviewed and discussed in class in groups. Students will be asked to discuss and contribute in class as if presenting findings to management.

Students will also be asked starting in week 2 and future weeks to complete or build selected analytic worksheets, tools or templates, to answer specific questions in terms of statistical relationships, financial cost and ROI. Students will also be asked to identify key performance indicator metrics (KPIs) that the organization should utilize as well as the relevant business impact of changes in select KPIs to the organizations using case study and selected data from organizations.

TEAM PROJECT
Team projects will include 4-5 person self-selected teams (with instructor approval) conducting analysis of a real company human capital data using actual current/historical data to analyze, quantify and solve key human capital questions identified by company management. Teams will make a final presentation either submitted as a zoom recording or in class to management of mock CFO's. Use of volunteer companies who provide data will be requested. Companies for analysis can be selected by the teams and other companies/data will be offered by course instructor. Data and context for the team project will be provided by the selected companies or by the instructor or both. Grades for team projects will be assigned by the professor, based on the observations of the team's working dynamics, assessment of the team's project quality, and thoughtful consideration of the information provided through your peer evaluations.

FINAL EXAM
The final exam is open book, at the end of the course, with resource documents provided including multiple HR metrics to be calculated as part of final exam based on given data. A final exam review session will also be provided.

THE IMPORTANCE OF COURSE EVALUATIONS
The student course evaluations are valuable. This course is continuously improved, based on feedback from students and instructor observations.

EMERGENCY PREPAREDNESS

In case of a declared emergency if travel to campus is not feasible, the USC Emergency Information web site (https://emergency.usc.edu/) will provide safety and other information, including electronic means by which instructors will conduct class using a combination of USC's Blackboard learning management system (blackboard.usc.edu), teleconferencing, and other technologies.

Course Outline and Assignments

NOTE: Reading assignment #/s correlate to course reading/assignment materials on syllabus page 2 (i.e. #2 is White paper report: Valuing human capital)

	Topics/ Daily Activities	Readings and Homework	Deliverables with Due Dates
Week 1	- HR and human capital analytics defined, levels of analytics, - HR standards to measure and report workforce data - Basics for building a business case	#2(pages1-3), #3(pages 1-15), Scofield Financial Turnover case study(2005), Starbucks Coffee store level survey and analysis case study,	class participation, review, case study interpretation, team -case study analysis - in class -Project Team formation
Week 2	- Tools for analysis, what the world uses - The talent management life cycle - Metrics, Key Performance Indicators (KPIs) and Scorecards - Intro to Forecasting	#4(pages 1-7), HP Scorecard case study exercise, Southeast Asia Property Performance Scorecard review in class	-**Homework assigned**, *Excel worksheet simple analytic forecasting* -in class, HP Scorecard case -Download PowerBI desktop -Project teams formed
Week 3	- Using questions to create & show value with analytics - Building a business case, practical application, present a compelling story - Opportunity sizing, sensitivity analysis, variance analysis - Using advanced analytic tools to solve business issues	*#1,* Service Corp. International ROI of Sales Training case study(2010) in class, Public Storage turnover case study (2018)	-Team projects selected -Homework due *Excel/ Business case team homework due/presentations* -Intro PowerBI sample dataset -Team project selected
Week 4	-Transforming data into business intelligence – segmentation, cohort analysis, outliers -Designing and populating dashboards, best practices -HR standards, A deeper dive	Lecture materials, National Cancer Institute case study (2016) in class, UPS case study (2013,2016) in class	*-PowerBI Homework due, simple metrics analysis* -Present homework dashboard practice *-Metrics Quiz*

Week 5	-Interpreting analytic results, statistics vs financial modeling
	-When to use statistics vs financial modeling
	-Quantify workforce productivity - Linking business strategy to key questions, metrics/ KPIs
		#1(review), #2(all), #4(pages 8-25), BioTech (2014) Workforce Productivity case in class, JetBlue Employee NPS (2012) case study in class	*-PowerBI Homework due, simple, vs. advanced analysis, examples of statistics vs financial modeling*
			   -Workforce productivity and What-If Modeling
			   - Presentation practice

Week 6	-Visualization, presentation, storytelling with data, -Powerful visuals, impact metrics, business intelligence (root cause, drivers, predictive, prescriptive) -Team project review	#1(review), #4(pages 25-35), Virgin Pulse study in class, ROI of Wellbeing (2019) case study in class	Team project review. Homework due - *Visualization homework including using modeling, prediction and optimization/ROI* - Presentation practice
Week 7	-Advanced modeling analysis and testing to optimize results -Team Analysis Project presentations	workforce productivity and case studies, Union Bank Talent Optimization (2013) discuss in class	**-Team Project Presentation submitted virtually**
Week 8	Final Exam		Final Exam, TBD

OPEN EXPRESSION AND RESPECT FOR ALL

An important goal of the educational experience at USC Marshall is to be exposed to and discuss diverse, thought-provoking, and sometimes controversial ideas that challenge one's beliefs. In this course we will support the values articulated in the USC Marshall "Open Expression Statement."

STATEMENT ON ACADEMIC CONDUCT AND SUPPORT SYSTEMS

Academic Conduct:

Plagiarism – presenting someone else's ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Part B, Section 11, "Behavior Violating University Standards" policy.usc.edu/scampus-part-b. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on Research and Scholarship Misconduct.

Students and Disability Accommodations:

USC welcomes students with disabilities into all of the University's educational programs. The Office of Student Accessibility Services (OSAS) is responsible for the determination of appropriate accommodations for students who encounter disability-related barriers. Once a student has completed the OSAS process (registration, initial appointment, and submitted documentation) and accommodations are determined to be reasonable and appropriate, a Letter of Accommodation (LOA) will be available to generate for each course. The LOA must be given to each course instructor by the student and followed up with a discussion. This should be done as early in the semester as possible as accommodations are not retroactive. More information can be found at osas.usc.edu. You may contact OSAS at (213) 740-0776 or via email at osasfrontdesk@usc.edu.

Support Systems:

Counseling and Mental Health - (213) 740-9355 – 24/7 on call
studenthealth.usc.edu/counseling
Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call
suicidepreventionlifeline.org
Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-9355(WELL), press "0" after hours – 24/7 on call
studenthealth.usc.edu/sexual-assault
Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

Office for Equity, Equal Opportunity, and Title IX (EEO-TIX) - (213) 740-5086
eeotix.usc.edu
Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

Reporting Incidents of Bias or Harassment - (213) 740-5086 or (213) 821-8298
usc-advocate.symplicity.com/care_report
Avenue to report incidents of bias, hate crimes, and microaggressions to the Office for Equity, Equal Opportunity, and Title for appropriate investigation, supportive measures, and response.

The Office of Student Accessibility Services (OSAS) - (213) 740-0776

osas.usc.edu

OSAS ensures equal access for students with disabilities through providing academic accommodations and auxiliary aids in accordance with federal laws and university policy.

USC Campus Support and Intervention - (213) 821-4710

campussupport.usc.edu

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

Diversity, Equity and Inclusion - (213) 740-2101

diversity.usc.edu

Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call

dps.usc.edu, emergency.usc.edu

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call

dps.usc.edu

Non-emergency assistance or information.

Office of the Ombuds - (213) 821-9556 (UPC) / (323-442-0382 (HSC)

ombuds.usc.edu

A safe and confidential place to share your USC-related issues with a University Ombuds who will work with you to explore options or paths to manage your concern.

*Occupational Therapy Faculty Practice - (323) 442-33*40 or otfp@med.usc.edu

chan.usc.edu/otfp

Confidential Lifestyle Redesign services for USC students to support health promoting habits and routines that enhance quality of life and academic performance.

SAMPLE PEER EVALUATION FORM

Please identify your team and team members for the _____ Project(s) that you worked on. Then rate all your team members, *including yourself,* based on the **contributions** of each team member for the selected assignment according to the criteria listed below. On a scale of 0 – 5 with 0 = does not meet expectations, 1 = somewhat meets expectations, 2 = mostly meets expectations, 3 = meets expectations, 4 = exceeds expectations, 5 far exceeds expectations. Rate each person on each of the five criteria. Lastly, add up the points for each person with the maximum number of points for each person being 25. In the box below, describe the exact contributions of each team member, including yourself.

Team Members/ Assessment Criteria of Team Contributions	**Team Member 1**	**Team Member 2**	**Team Member 3**	**Yourself**
1. **Creativity, Insight, Role Performance**				
2. **Teamwork, Assists Team Members, Listening, Discussing**				
3. **Technical/Analytics Skills and Contribution**				
4. **Research and Information Sharing**				
5. **Project and Time Management**				
Total				

Contribution details:

Appendix III

SAMPLE CLASS PARTICIPATION STATEMENTS

Class participation is an extremely important part of the learning experience in this course as the richness of the learning experience will be largely dependent upon the degree of preparation by *all* students prior to each class session.

A course that incorporates the frequent use of case analyses to illustrate the practical application of concepts and practices requires the student to diligently and thoroughly prepare cases and actively offer the results of the analyses and conclusions derived as well as recommendations during each class session. My expectation and that of your classmates are that you are prepared for *all* classes and will actively participate in and meaningfully contribute to class discussions.

In-class participation is also a critical part of this course's learning experience. Cold calling may take place to encourage active participation and to gain multiple perspectives and points of view, thus lending itself to the richness of the learning experience. In-class participation grading will be based on students' demonstrated willingness to participate and the quality of the comments expressed, rather than quantity. While some students are far more comfortable than others with class participation, *all* students should make an effort to contribute meaningfully.

Students will offer their opinions in group settings many times in their careers; thus, class participation serves to prepare students for this business experience.
The evaluating of in-class participation is based on the following:

- *Relevance* – Does the comment or question meaningfully bear on the subject at hand? Irrelevant or inappropriate comments can detract from the learning experience.
- *Responsiveness* – Does the comment or question connect to what someone else has said?
- *Analysis* – Is the reasoning employed consistent and logical? Has data from course materials, personal experience, or general knowledge been employed to support the assertions/findings?
- *Value* – Does the contribution further the understanding of the issues at hand?
- *Clarity* – Is the comment concise and understandable?

During class sessions, I frequently assume the role of a facilitator to encourage a discussion that includes perspectives from a variety of viewpoints and, secondly, to help pull together prevailing analyses and recommendations. The direction and quality of a discussion is the *collective responsibility of the class*.

For each in-class session two (2) points will be awarded to a student for relevant and meaningful participation, one (1) point for modest contributions to the class and zero (0) points for no participation or absence.

To underscore the importance of participation, <u>10</u> percent of the course grade or <u>10</u> of <u>100</u> points are allocated to class participation.

Class Participation—Behavioral Anchor Rating Scale:

Excellent Performance
- Initiates information relative to topics discussed
- Accurately exhibits knowledge of assignment content
- Clarifies points that others may not understand
- Shares personal experiences or opinions related to topic
- Offers relevant / succinct input to class
- Actively participates in class exercises
- Demonstrates ability to apply, analyze, evaluate & synthesize course material.
- Demonstrates willingness to attempt to answer unpopular questions
- Builds on other students' contributions

Average Performance
- Participates in group discussions when asked
- Demonstrates knowledge of course material
- Offers clear, concise, "good" information on class assignments
- Offers input, but tends to reiterate the intuitive
- Attends class regularly

Unacceptable Performance
- Fails to participate even when directly asked
- Gives no input to discussions
- Does not demonstrate knowledge of the readings
- Shows up to class: does nothing
- Distracts group / class
- Irrelevant discussion