

**FALL
2026**

DATA SCIENCES + OPERATIONS

DSO 505

SUSTAINABLE SUPPLY CHAINS

16219: Thu | 6:30 PM – 9:30 PM (ONLINE)

16220: Thu | 6:30 PM – 9:30 PM (In-person)

Both sections offered 2nd Half of Semester

Instructor: Bonnie Nixon, Ph.D.

 bonnieni@marshall.usc.edu



SCHEDULE OF CLASSES

Units: 1.5

Office: TBD

WHY TAKE THIS COURSE?



This is an important course for those supply chain, marketing and finance students interested in consulting, industry, government service or entrepreneurship.

Sustainability is a critical topic of the day in boardrooms, government and financial institutions. Supply chains account for 80% of the planet's greenhouse gas emissions, a significant portion of its pollution and disposal issues, and a large part of social and worker exploitation. This course provides an understanding of these issues, the consequences, trade-offs and how companies can address them in an end-to-end supply chain given today's geopolitical challenges. Actual commodities will be examined for opportunities lying in cost reductions, product innovation, new markets, increases in brand equity, compliance with regulations and investors.

COURSE OBJECTIVES



To provide students with an understanding of the sustainability challenges, risks, trade-offs, trends and opportunities facing global supply chains today.

KEY CONCEPTS



- Sustainability and Supply Chain definitions and frameworks
- Consumer Brand and B2B Commodity Benchmarking
- Government and international standards, rules, laws, and ESG codes of conduct
- Sustainable design of products
- Supplier/Vendor management
- Monitoring and Verification Systems including LCAs
- Disclosure and Communication
- Supply Chain Innovations
- Marketing Transformation

COURSE DESCRIPTION



We will look at some of the factors that contribute to the adoption of sustainable supply chain strategies, such as code and policy formation, enforcement and or lack thereof resulting in environmental and social impacts. Society's expectations of business in terms of health, safety, human rights, ethics and the environment are discussed alongside the demand for profit maximization and increasing shareholder value. Global ethical sourcing strategies, risk management and supply chain performance metrics will consider social, environmental, and economic impacts.



SCHEDULE OF CLASSES

**FALL
2026**

DATA SCIENCES + OPERATIONS

DSO 506

SOURCING AND SUPPLIER MANAGEMENT

16223: Tue & Thu | 12:30 PM – 1:50 PM

16224: Thu | 6:30 PM – 9:30 PM (ONLINE)

Instructor: Alireza Kabirian

 kabirian@marshall.usc.edu

Units: 1.5

Office: BRI 307 E

WHY TAKE THIS COURSE?



In today's fast-evolving business landscape, where globalization, tariffs, geopolitical risks, and shifting trade routes constantly reshape supply chains, strong supplier relationships and smart sourcing strategies are more critical than ever. This course is perfect for students pursuing careers in supply chain management, consulting, or operations, offering hands-on tools and strategic frameworks to tackle complex, real-world procurement challenges.

COURSE OBJECTIVES



Master the skills to make strategic sourcing decisions, manage suppliers, analyze costs, and mitigate procurement risks. Through case studies and real-world applications, students learn to develop effective sourcing strategies.

KEY CONCEPTS



- Purchasing and supplier management
- Cost analysis
- Total cost of ownership
- Prices and contracts
- Procurement risks
- Supplier selection and evaluation
- Global sourcing
- Dual sourcing
- Environmental and social issues in sourcing and purchasing

COURSE DESCRIPTION



Covers the fundamentals of sourcing, supplier selection, procurement risks, and managing supplier relationships, with a focus on sustainability. We use games, cases, and real-world stories to explore how sourcing decisions impact supply chain strategy and business operations.



SCHEDULE OF CLASSES

**FALL
2026**

DATA SCIENCES + OPERATIONS

DSO 522

APPLIED TIME SERIES ANALYSIS FOR FORECASTING

Section(s): 16239

Wednesday: 12:30 PM – 1:50 PM

INSTRUCTOR: Robertas Gabrys

 gabrys@marshall.usc.edu

Units: 1.5

Office: BRI 401 N

WHY TAKE THIS COURSE?



In business forecasting, time series models are used to analyze data that are collected over time to develop forecasting models for revenues, earnings, inventory, sales, budgets and new product development.

Because time series data arise in so many different business areas, forecasting methods apply to problems in finance, marketing, real estate, production, operations research, international business, and accounting.

Knowledge of forecasting methods is among the most demanded qualifications for business people working in either private or public sector of the economy. This course provides those skills and also opens possibilities for a forecasting management position in business. There is a shortage of well-trained MBA's for these positions.

COURSE OBJECTIVES



Students learn simple and sophisticated methods and obtain forecasting skills and experience by completing several projects. There is a comprehensive final exam but no midterm. The course projects provide practical experience developing forecasting models for actual business operations. Students also obtain firsthand experience using XLMiner, a state of the art business analytics and time series package that extends Microsoft Excel.

The general aim is the development of sophisticated professionals, able to critically analyze business data and create business forecasting reports.

KEY CONCEPTS



- Business Forecasting
- Forecasting Methods
- Time Series Models
- Regression and Box-Jenkins

Course Description



This course will emphasize the usefulness of regression and Box-Jenkins forecasting methods for analyzing time series data. Topics to be covered include the concept of stationarity, autoregressive and moving average models, identification and estimation of models, prediction and assessment of model forecasts, seasonal models, and intervention analysis. The course goals are for each student to understand time series methods and obtain "hands on" experience using, analyzing, and developing forecasting models for business applications.



SCHEDULE OF CLASSES

**FALL
2026**

DATA SCIENCES + OPERATIONS

DSO 528

**BLENDED DATA BUSINESS ANALYTICS
FOR EFFICIENT DECISIONS**

Section: 16246

Wednesday, 6:30 PM – 9:30 PM

Instructor: COSIMO ARNESANO

 arnesano@marshall.usc.edu

Units: 3.0

Office: BRI 401 O

WHY TAKE THIS COURSE?



This course is ideal for students and professionals aiming for careers in business analytics, digital transformation, or any data-driven field. It's particularly valuable for those who want to learn how to apply analytical models to real business problems using both internal and external data sources. Whether you are new to analytics or looking to bridge the gap between data science and business strategy, this course will equip you with practical tools and insights.

COURSE OBJECTIVES



- Apply descriptive, diagnostic, predictive, and prescriptive analytics to real-world business challenges.
- Build and explain analytical models (e.g., classification, clustering) that drive strategic decision-making and create stakeholder value.
- Develop data mining skills and interpret business intelligence frameworks to monetize data effectively.

KEY CONCEPTS



- Data Mining
- Business Intelligence
- Supervised Learning
- Unsupervised Learning
- Python and Google Colab
- Classification
- Clustering and Association rules
- K-Nearest Neighbors (KNN)
- Decision Tree, Logistic Regression
- Neural Network, Naïve Bayesian
- Partitional and Hierarchical Clustering
- Ensemble Modeling – Bagging and Boosting
- KPIs – Business and Statistical
- Search Engine Marketing
- Social Impact of AI

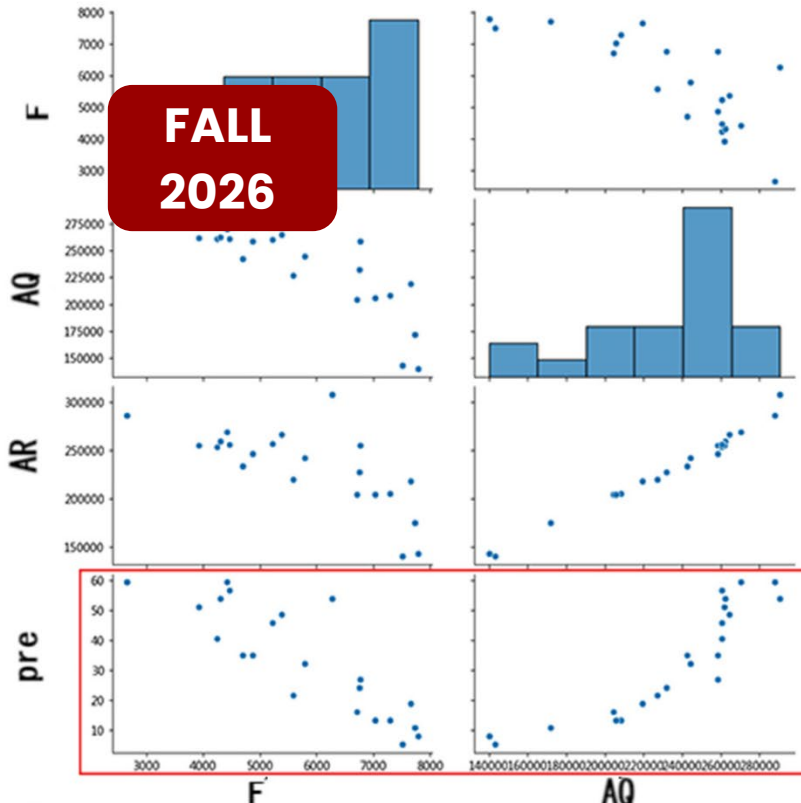
Course Description



The course prepares students to solve complex business problems through data analytics. Covering the full analytics lifecycle—from data sourcing and enrichment to model development and business strategy—students learn to design and implement data-driven solutions aligned with organizational goals. Emphasis is placed on real-world application through case studies, hands-on modeling in JMP and Python, and a capstone project. By the end of the course, students gain the ability to turn large, messy datasets into actionable insights that drive efficient and informed business decisions.



SCHEDULE OF CLASSES



**FALL
2026**

DATA SCIENCES + OPERATIONS

DSO 529

ADVANCED REGRESSION ANALYSIS

Section: 16248

T/Th: 9:30 am – 10:50 am
full semester

INSTRUCTOR: Dawn Porter

 dcporter@marshall.usc.edu

Units: 3.0 Office: BRI 307C

WHY TAKE THIS COURSE?



Regression Analysis skills are in high demand for working in both the private or public sector. This course develops critical thinking skills and prepares students for analyst roles.

This course is intended for students interested in arguably any business-related field or for those who want a practical introduction to Applied Statistics, Multivariate Analyses, and Econometrics.

COURSE OBJECTIVES



Students will understand regression methods and obtain hands-on experience using, analyzing & developing multivariate models for business applications. This data analysis course will be demonstrated using JMP software, but most standard statistical package or programming languages are allowed.

KEY CONCEPTS



Regression analysis is performed in any organization working with quantifiable data.

- Marketing managers forecast sales for promotional budgets.
- Accountants rely on cost and revenue forecasts in tax planning.
- Finance experts must forecast cash flows to maintain solvency.
- HR departments use forecasts to plan employee recruitment and changes in the workforce.

Production managers rely on forecasts to determine raw material needs and the desired inventory of finished products.

Course Description



This is a data-driven applied statistics course focusing on the analysis of data using Regression and Multivariate models. Topics include Multiple Linear Regression Analysis, Residual Analysis, Non-linear Modeling, Heteroscedasticity Correction, Time Series Modeling, Modeling with Categorical Predictors, Logistic Regression, Analysis of Variance, Clustering, and Panel Data Analysis.



SCHEDULE OF CLASSES

**FALL
2026**

DATA SCIENCES + OPERATIONS

DSO 547

SPREADSHEET MODELING FOR BUSINESS INSIGHTS

Monday / 6:30–9:30 PM

PROFESSOR: BALA SUBRAMANIAN

 Bala.Subramanian@marshall.usc.edu

Units: 3

Office: BRI/TBD

WHY TAKE THIS COURSE?



Aspiring finance professionals, business analysts, quant-savvy entrepreneurs, and management consultants need spreadsheet modeling skills to draw insights and build projections amidst uncertain conditions. Class is led by someone who has served as senior executive in varied organizations (Fortune 1 to startup), established and managed analytics functions to influence and drive billion-dollar impacts & lasting competitive advantage.

COURSE OBJECTIVES



Using Excel as the platform, this course trains professionals to become effective modelers: to translate industry challenges into well-formulated spreadsheet models, then use those models to drive decision-making.

KEY CONCEPTS



- Spreadsheet Modeling
- Multiple Regression Modeling
- What-if/Sensitivity Analysis
- Decision Analysis (Decision Trees)
- Montecarlo Simulation
- Data Tables & Pivot Tables
- Optimization
- Scenario & Risk Analysis
- Financial Modeling
- Driving Insights to Action

Course Description



It has been said that “insights” are the true “breakfast of champions”, and spreadsheets (Excel) have become a widely used, indispensable tool for business analysis. The course teaches spreadsheet modeling skills as well as industry best practices and expectations. Modeling skills are developed throughout the course using examples from many functions and industries. In addition to general modeling skills, the course will teach a handful of frameworks and tools useful to drawing managerial insights. Special emphasis is placed on understanding the fundamental drivers to quantitative decision-making as well as the communication skills necessary to drive organizational change.

Some basic experience with Excel/spreadsheets expected; your proficiency & confidence will get much higher, becoming a real asset in any role.



SCHEDULE OF CLASSES

**FALL
2026**

DATA SCIENCES + OPERATIONS

DSO 547

SPREADSHEET MODELING FOR BUSINESS INSIGHTS

16257 – Thu: 6:30 PM – 9:30 PM

INSTRUCTOR: Murat Bayiz

 bayiz@Marshall.USC.Edu

Units: 3.0

Office: BRI 307 A

WHY TAKE THIS COURSE?



Aspiring finance and marketing professionals, business analysts, quant-savvy entrepreneurs, and management consultants need spreadsheet modeling skills to draw insights and build projections amidst uncertain conditions.

COURSE OBJECTIVES



Using Excel as the platform, this course trains professionals to become effective modelers: to translate industry challenges into well-formulated models, and then use those models to drive decision-making. This course also teaches various tools for data modeling and visualization using large data sets. Finally it introduces how to write VBA macros to increase the power of Excel.

KEY CONCEPTS



- Data Tables & Pivot Tables
- Data Visualization
- Spreadsheet Modeling
- Optimization
- Monte Carlo simulation
- @Risk
- Scenario and Risk Analysis
- Tableau
- Think-cell Applications
- Writing VBA Macros

Course Description



The course teaches spreadsheet modeling skills as well as industry best practices and expectations. Modeling skills are developed throughout the course using examples from many functions and industries. In addition to general modeling skills, the course will teach a handful of frameworks and tools useful to drawing managerial insights.

Particular emphasis is placed on the understanding of the fundamental drivers to quantitative decision-making as well as the communication skills necessary to drive organizational change.



SCHEDULE OF CLASSES

**FALL
2026**

DATA SCIENCES + OPERATIONS

DSO 550

APPLYING ANALYTICS TO HUMAN CAPITAL IN BUSINESS

16260: Thu – 6:30 PM – 9:30 PM
1ST Half of Semester

INSTRUCTOR: Jeff Higgins

 Jahiggin@USC.Edu

Units: 3.0

Office: TBD

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

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.

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.



SCHEDULE OF CLASSES

DIGITAL TRANSFORMATION in the GLOBAL ENTERPRISE

Digital transformation is redefining how global enterprises create, deliver, and capture value.

WEDNESDAYS 6:30-9:30PM | 3CR

FALL 2026



**COURSE
COMPANION**

WHY THIS COURSE MATTERS

Organizations today face a convergence of AI-driven reinvention, operating model transformation, and sustained performance pressure. Artificial intelligence is fundamentally reshaping the architecture of the modern enterprise, redefining how work is coordinated, decisions are made, and value is delivered at global scale.

THE LEARNING EXPERIENCE

The course integrates lectures, case discussions, collaborative breakout activities, and guest speakers. Each session builds progressively, weaving in real-world examples to deepen understanding and application.

CAPABILITIES YOU WILL BUILD



Develop the strategic, and analytical capabilities needed to drive digital transformation in complex global organizations.



Demonstrate visually how AI can create opportunities for positive impact across business functions and industries.



Learn how emerging technologies are transformed into actionable strategies that drive business value.



Develop the mindset and tools used to shape the future of business.



Design and evaluate transformation strategies in uncertain and rapidly evolving environments.

CONTACT:

Professor Inge Lindholm | ilindhol@marshall.usc.edu

FALL
2026

DATA SCIENCES + OPERATIONS

DSO 552

SQL DATABASES FOR BUSINESS ANALYSTS

Section(s): 16266

Tues/Thu: 12:30 PM – 1:50 PM
2nd Half of the semester

INSTRUCTOR: YOLA KATSARGYRI

 katsargy@marshall.usc.edu

Units: 1.5

Office: BRI 400 B

WHY TAKE THIS COURSE?



This course will prepare the student for a world and a job market where data is one of the most important business and knowledge assets. The student will become **proficient in SQL**, the #1 sought after skill for data-driven professionals. SQL allows you to better understand and interpret your company's data and make data-driven decisions. It will also give you the background you need to be able to manage data-driven teams. If you want to have a competitive edge in this job market, no matter what role or field you are interested in, then this class is for you!

COURSE OBJECTIVES

The objective of this course is to provide the prospective professional with competitive skills in analyzing, interpreting and leveraging an organization's data to support business applications and decisions.



KEY CONCEPTS

- SQL (Structured Query Language)
- Entity Relationship Diagrams
- Exploratory Data Analysis
- Data Insights



Course Description



This course will prepare the student for a world and a job market where data is ubiquitous and one of the most important business and knowledge assets. The student will become proficient in SQL (Structured Query Language), one of the most popular data analysis languages and the #1 sought after skill for data professionals. It's becoming increasingly common for employers to require at least a basic knowledge of SQL in professions related to marketing, supply chain, finance, entertainment, operations management, data analytics, consulting, healthcare, sports, and much more. SQL allows you to better understand and interpret your company's data and make data-driven decisions for your business. If you want to have a competitive edge in this job market, then this class is for you!



SCHEDULE OF CLASSES

DSO 556

DIGITAL PLATFORM BUSINESS MODELS



FALL 2026

WHY TAKE THIS COURSE?

MBA/MS Students who are interested in being in designing and launching new products and services over digital platforms in established or start-up companies. Individuals who would like to learn how to design, assess and generate innovative digital business models while examining how to transform a traditional company into a platform business model company with ecosystem approach.

COURSE OBJECTIVES

Increasingly, all industries are being- “flipped” with the digital platform becoming the foreground while physical activities are becoming the background. Digital platform leadership is increasingly vital for strategic advantage. This course gives MBA/MS participants a competitive advantage in career preparation for full participation in aspects of business development and business model innovation in any industry where products & services are offered through digital platforms.

KEY CONCEPTS

- How to design & assess a business model in a digital platform ecosystem.
- Scoping and assessing digital business platform ecosystem niches.
- Leveraging partner capabilities through governance and APIs in digital business platform ecosystems.
- How to establish digital platform leadership
- Digital business strategy in dynamic and disruptive environments.
- How to identify, design, and assess innovative digital business models .
- Different types of digital business models (open innovation, user-generated content, Internet of things, sharing economy models, social commerce, and more...)

COURSE DELIVERY

- Recent case studies, articles, industry reports, current happenings.
- Cases include: Intuit, Pinduoduo, Stripe, Advantech, The Yes, Salesforce Agentforce...and. more
- Mid-term and end-term team projects: Developing digital business model innovation proposal for a company, digital platform ecosystem strategic moves
- Course Reference Text: Platform Revolution
- Fosters interactive discussion & peer learning.
- Online discussion forum.
- General management multi-disciplinary format.

Times To Choose From:

16281: Tuesdays/Thursdays (In Person) 3:30 pm - 4:50 pm
16282: Tuesdays/Thursdays (In Person) 5:00 pm - 6:20 pm

Professor Inge Lindholm | ilindhol@marshall.usc.edu

**FALL
2026**

DATA SCIENCES + OPERATIONS

DSO 564

**GENERATIVE AI AND AUTOMATION:
BUSINESS & SOCIETAL IMPLICATIONS**

16302: MW – 3:30 PM – 4:50 PM

16303: MW – 5:00 PM – 6:20 PM

INSTRUCTOR: Georgios Petropoulos

 georgios@marshall.usc.edu

Units: 3.0

Office: BRI 401 S

WHY TAKE THIS COURSE?



Get the full picture of the implications of generative AI and automation on business, managerial decisions and social outcomes. Work on real world cases of implementation of frontier digital technologies. Learn how AI should be applied in business context and its economic and social impact.

COURSE OBJECTIVES

- Understand the basic steps of a successful AI business strategy
- Explain the major societal and regulatory concerns.
- Choose optimal managerial decisions regarding the adoption of automation and Generative AI in a variety of business models.



KEY CONCEPTS



Generative artificial intelligence, machine learning, automation, innovation strategies with AI, regulation of digital markets.

Course Description



Automation technologies such as Robotics, Machine Prediction, Artificial Intelligence (AI) and Generative AI have important implications for how companies stay competitive and how workers perform various tasks. Companies are currently undergoing digital transformations and becoming more data driven. This process incorporates a key consideration for how companies conduct their business and engage with consumers. This course will provide students with an overview of concepts from digital transformation, industrial economics and digitization research, that explains how companies have transformed using AI and automation technologies. The class will also look ahead to understand how the emergence of Generative AI can transform our economy, society, and business in the coming years.



SCHEDULE OF CLASSES

**FALL
2026**

DATA SCIENCES + OPERATIONS

DSO 567

DATA ANALYTICS FOR THE GAMES INDUSTRY

Section(s): 16304

Thu: 630 PM – 9:30 PM

INSTRUCTOR: Vic Bekarian

 Bekarian@usc.edu

Units: 1.5

Office: TBD

WHY TAKE THIS COURSE?



Build your understanding of how most games industry leaders build, test, and launch their products through the data and analytics required to succeed in these steps. Learn and exercise the skills required to manage and grow any digital product; you'll especially learn the analytical craft in the context of making successful video games. This course is especially valuable for pursuing roles as Analysts, Data Scientists, and Product Managers.

COURSE OBJECTIVES



Learn how to analyze game data to make informed business decisions. Explore key metrics for live products, understand how data supports player acquisition, retention, and monetization, and gain insights through player segmentation. Learn and exercise the language of player behavior.

KEY CONCEPTS



- ❖ Product Metrics and KPIs
- ❖ A/B Testing
- ❖ Game Design and Operations
- ❖ Player Segmentation
- ❖ Player Lifecycle Management
- ❖ Games-as-a-Service (GaaS/SaaS)
- ❖ Customer Lifetime Value (LTV)
- ❖ Python (for data analysis)
- ❖ Predictive Modeling

Course Description



The global games industry generated nearly \$200 billion in 2024. On its path to becoming the dominant business in entertainment, the games industry has been evolving the way it tracks, analyzes, and reacts to the data it collects on player behavior. The evolution of data analytics has enabled more data-informed decision-making, as well as ongoing marketing and product optimizations that create tremendous results.

This course will help graduate students understand the basics of data analytics as it is used in the games industry and build practical skills by connecting analytics methodology to the ways we measure and report on the business performance of games. Students will analyze game data, draw insights, and practice thoughtful communication of recommendations according to their findings. Students will also play and describe games to build an understanding of how player experience and the data generated are connected, becoming more empathetic and understanding analysts for the products they could eventually work on.



SCHEDULE OF CLASSES

**FALL
2026**

DATA SCIENCES + OPERATIONS

DSO 568

HEALTHCARE ANALYTICS

Section(s): 16306

MONDAY: 12:30 PM – 1:50 pm

INSTRUCTOR: COSIMO ARNESANO

 arnesano@marshall.usc.edu

Units: 1.5

Office: BRI 401 O

WHY TAKE THIS COURSE?



Students who plan to have a career in Business Analytics and interested in knowing more about how to apply analytics skillset and methodologies to solve challenging problems in the healthcare industry should take this course. Students who want to learn how to identify innovative uses of data to solve healthcare management problems, understand key industry metrics, and guide professional decision-making should take this course.

COURSE OBJECTIVES



1. Introduce the basics of healthcare analysis related to clinical and health outcomes, research and development, value vs. cost, financial performance, risk analysis, and more.
2. Describe the basics of the healthcare ecosystem including key constituents and shareholders, and their goals from the perspective of various disciplines.
3. Empower students to research and analyze real healthcare data using a variety of software platforms and formulate business recommendations.

KEY CONCEPTS



Business Analytics, US Healthcare ecosystem, R programming, Python programming, JMP and Excel analytics tools, Machine Learning, Artificial Intelligence in Medicine, Financial Performance, Risk Management, Research and Development, Consumer Insights, Fee-for-service approach, Value-based care approach

Course Description



The healthcare industry is changing rapidly due to technological changes, regulatory changes, demographic shifts, and changes in consumer expectations. This course helps graduate students understand the basics of healthcare analytics, the challenges, the opportunities, and separate what is real and what is speculation and hype. This is a hands-on class where students will be analyzing real healthcare data and then presenting their actionable business strategy insights and recommendations. Students will be working on projects and other assignments both individually and in groups.

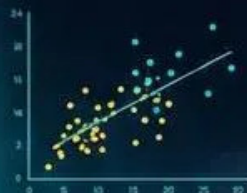
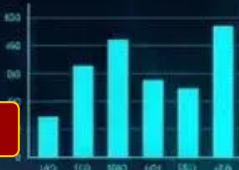


SCHEDULE OF CLASSES

DSO 578

USC Marshall
School of Business
Department of Data Science
and Operations

FALL 2026



USC TROJAN
ANALYTICS
WARRIORS



Tue/Thu: 11:00 AM – 12:20 PM



Instructor: Lorena Martin



lmartin1@usc.edu



Units: 1.5

Section(s): 16323

Course Description

This course provides a foundation in sports analytics, covering sports performance, strategy, salary cap analysis, drafting, and scouting.

Students examine data collection, statistical models used in pro sports, and Python/Jupyter tools for analysis and visualization.

The course covers physical performance measurements—jumping, speed, agility, strength—and psychological variables, culminating in professional-grade presentation reports for coaches and front-office executives.

Key Topics

- ✓ Sports Performance Measurement & KPIs
- ✓ Exploratory Data Analysis
- ✓ NFL, NBA, MLB, MLS, ATP/WTa Data
- ✓ Python, Jupyter & Anaconda
- ✓ Statistical Models (ANOVA, Regression)
- ✓ Injury Prevention & Cost Analytics
- ✓ Wearable Technology in Pro Sports

FUNDAMENTALS OF SPORTS PERFORMANCE ANALYTICS

Course Objectives

- 1 Apply data science principles to sports performance analytics.
- 2 Use statistical modeling on professional athlete performance data.
- 3 Analyze injury impact and financial costs to sports organizations.
- 4 Present data insights to players, coaches, and front office management.

NO PREREQUISITES NEEDED

DATA SCIENCES + OPERATIONS

OPEN TO ALL MAJORS

**FALL
2026**

DATA SCIENCES + OPERATIONS

DSO 580

PROJECT MANAGEMENT

Section: 16327 – TUE | 6:30 PM – 9:30 PM

INSTRUCTOR: Murat Bayiz

 bayiz@marshall.usc.edu

Units: 3.0

Office: BRI 307 A

WHY TAKE THIS COURSE?



In any position, our graduates will work in projects either as a project manager or a team member. It is important that they know effective project management methodologies. This course provides them with necessary formal project management skills that can be applied all industries.

COURSE OBJECTIVES



To provide students with tools and skills needed in planning, managing, monitoring and controlling complex projects with numerous uncertainties. Also, to teach Microsoft Project, Excel and simulation models to make quantitative trade-offs while managing projects

KEY CONCEPTS



- Project organization structures
- Work Break Down structure
- Project evaluation and selection
- Planning and budgeting
- Project scheduling (CPM/PERT)
- Resources management
- Time and cost trade-offs
- Hands on AI in project management practices
- Risk management
- Product management
- Agile project management and Scrum
- Project monitoring with Earned Value analysis
- Microsoft Project applications
- Excel and Monte-Carlo Simulation models

Course Description



This course begins with project definition and organization concepts. Then it moves on to planning and scheduling methodologies. It will also cover risk and resource management, Agile project management, and Earned Value Analysis. Course materials are enriched with guest speakers, AI in project management exercises, games, software tutorials on MS Project, Excel and @Risk, and case discussions



SCHEDULE OF CLASSES

**FALL
2026**

DATA SCIENCES + OPERATIONS

DSO 581

SUPPLY CHAIN MANAGEMENT

Section(s): 16329

Tue & Thu: 2:00 PM – 3:20 PM

Instructor: Alireza Kabirian

 kabirian@marshall.usc.edu

Units: 3.0

Office: 307 E

WHY TAKE THIS COURSE?



Anybody interested in consulting, marketing, operations, manufacturing, or entrepreneurship. Firms need a sound knowledge of how supply chains work, what are the key metrics, and what incentives must be provided for the systems to work well. And expertise in Supply Chain Management is becoming crucial if you aspire to leadership positions, regardless of career track.

COURSE OBJECTIVES



Supply chains have been in the news a lot since the Covid-19 pandemic ... from shortage of PPE/toilet paper to the backup in the port of LA and recently tariffs and trade wars. We explore supply chain strategies, metrics, drivers and structures and review the primary tradeoffs in making supply chain decisions, and the basic tools for effective and efficient supply chain management, production planning and inventory control, order fulfillment and supply chain coordination..

KEY CONCEPTS



- Inventory management
- Cycle and safety inventory
- Newsvendor model
- Distribution system design
- Supply chain coordination
- Logistics
- Forecasting
- Network design
- Aggregate planning
- Enterprise resources planning
- Just-in-time manufacturing
- Supplier management
- IT in supply chains
- Sustainability and supply chains

Course Description



To provide students with an understanding of the intricacies of supply chains. To learn tools for management and improvement of supply chain processes and performance.



SCHEDULE OF CLASSES

**FALL
2026**

DATA SCIENCES + OPERATIONS

DSO 582

**SERVICE MANAGEMENT:
ECONOMICS AND OPERATIONS**

Tuesday / 6:30–9:30 PM

PROFESSOR: BALA SUBRAMANIAN

 Bala.Subramanian@marshall.usc.edu

Units: 3

Office: BRI/TBD

WHY TAKE THIS COURSE?



The service sector dominates the global economy (75% of GDP & 80% of jobs). In addition to the 'pure' service sector (hotels, hospitals, airlines, retail), many manufacturing businesses, facing commoditization, are seeking to differentiate through service.

Aspiring general management professionals, business change agents, entrepreneurs, and management consultants are realizing that service management expertise is considered a pre-requisite for senior leadership roles.

Class is led by someone with vast experience in services leadership in varied organizations & leading service brands, bringing a truly multi-disciplinary lens (marketing, operations, HR, technology) to address real-world service challenges.

COURSE OBJECTIVES

To provide the analytical tools and integrated viewpoint needed for managing service firms. Considerable attention is placed on the economics of service firms, e.g., how to set & update pricing and product availability across various selling channels to maximize profitability.



KEY CONCEPTS



- Service Strategy
- Influencing Customer Behavior
- Managing Service Quality
- Service Recovery
- Yield Management
- Efficient Service Delivery
- Effective Resource Planning
- Employee Engagement
- Pricing Theory
- Revenue Maximization

Course Description



Service management emphasizes delivering high-quality customer experiences: essential for brand loyalty and business growth. Many successful businesses differentiate themselves through exceptional service (e.g., Amazon, Apple, Nordstrom, Four Seasons, Zappos), and turn service innovation into a sustained competitive advantage. Learning service operations, process optimization, and technology integration helps businesses streamline costs while improving service quality.

In today's digital economy, most service impressions are made and/or wrecked online or virtually. Communicating virtually and managing effective digital conversations is key to setting and managing service expectations.

We will study examples from industries such as healthcare, information-based services, financial services, restaurants, retail, transportation and e-commerce to learn how "service distinction" can lead to market dominant loyalty & profits.



SCHEDULE OF CLASSES

**FALL
2026**

DATA SCIENCES + OPERATIONS

DSO 584

GLOBAL OPERATIONS MANAGEMENT

Section(s): 16332

Mon: 3:30 PM – 6:20 PM (**2nd Half**)

INSTRUCTOR: Dr. K. Ravi Kumar

 ravi.kumar@marshall.usc.edu

Units: 1.5

Office: TBD

WHY TAKE THIS COURSE?



Students who plan to work in the operations function (sourcing, procurement, manufacturing or service operations, customer delivery/ logistics, project managers, new product/service development and roll-out, acquisitions, joint-ventures) in a global environment. It should also be appropriate for those students whose jobs will interface with the global operations function:

- global marketing
- global human resources
- global finance
- global information technology
- global consulting
- global supply chain management

COURSE OBJECTIVES

To help students gain an exposure to the spectrum of issues which are crucial to the globalization of operations, describe successful operations management approaches in several countries and industries, give students an insight into the basic tradeoffs associated with making operations decisions in a global context and highlight the crucial role of inter-functional coordination in successful global operations.



KEY CONCEPTS



Some of the concepts addressed will include:

- Operations in Global Strategy
- Global Operations Strategy
- Sourcing/Procurement
- Outsourcing
- Risk Management
- Facilities Location
- Operations Planning
- Global Logistics
- Developing New Products /Services
- Technology Transfer

Course Description



The course is built around lectures on the important concepts, a set of cases, encompassing strategic and tactical operations in several major industries and countries, as well as readings and published research articles. You are expected to have read the assigned readings and carefully analyzed the cases before coming to class, and to take an active role in the class discussion.



SCHEDULE OF CLASSES

**FALL
2026**

DATA SCIENCES + OPERATIONS

DSO 585

DATA-DRIVEN CONSULTING

16335: Tue – 5:00 PM – 6:20 PM

16336: Wed – 5:00 PM – 6:20 PM

Instructor: Austin Pollok

 Pollok@usc.edu

Units: 1.5

Office: BRI 307 J

WHY TAKE THIS COURSE?



If you are a motivated graduate student who is looking to dive deep into a hands-on data driven project, then this is the class for you. The intended goal is to give students an opportunity to work on a project that they can showcase to potential employers, as well as give students a place to practice their technical communication skills by presenting to stakeholders. Students can choose their own topic of interest for a project, or the instructor will propose a project to work on.

COURSE OBJECTIVES



Upon successful completion, students will be able to:

- Identify opportunities to apply descriptive, predictive, and prescriptive analytics as a solution for a particular business problem.
- Translate a high-level business objective into a clear and precise data-driven objective.
- Build novel data sets by gathering, cleaning, and exploring data sources and vendors.
- Apply statistical analysis, machine learning, and optimization to help advance a data-driven solution for a company.
- Communicate effectively with both technical and non-technical business stakeholders on blockers, OKRs, KPIs, and recommendations.

KEY CONCEPTS



- Use the entire suite of analytics tools that you have developed during the program.
- Use project management tools, such as Asana, to help manage the project.
- Implement algorithms from analytics.
- Communicating technical methodologies to business stakeholders.
- Apply descriptive, predictive, and prescriptive tools in an unstructured setting.

Course Description



This course will apply descriptive, predictive, and prescriptive analytics tools to a particular business problem of their choosing. From the outset, we will discuss the relevant business intelligence specific to the problem. We will then move into properly scoping the project by setting objectives and key results (OKRs), as well as key performance indicators (KPIs). Finally, we will use Python programming, and any other necessary tools, to implement an analytics-based solution for the OKRs. This course can be challenging due to the hands-on nature of the course as well as the business problems and practical constraints faced by unstructured problems. These features of the course will benefit graduate students interested in real-world applications of business analytics. The course is offered as a Credit/No Credit course.



SCHEDULE OF CLASSES

**FALL
2026**

DATA SCIENCES + OPERATIONS

DSO- 599

**AGILE FRAMEWORKS FOR
DATA SCIENCE DEPLOYMENT**

THURSDAY / 6:30 – 9:30 PM PT

INSTRUCTOR: ANASTASIA EGOROVA

 Egorova@marshall.usc.edu

Units: 1.5

Office: TBD

WHY TAKE THIS COURSE?



This course is for students and professionals in data science, product, project management, and business analytics who want to bridge the gap between data science, solution design, and business strategy. You will gain hands-on experience with industry case studies, agile sprint development, prototyping, interaction with industry experts, and collaborative projects to develop scalable, impactful solutions.

COURSE OBJECTIVES

This interdisciplinary course equips students with the in-demand skills to design, deploy, and scale data science and AI solutions in an organization. It provides hands-on experience and practical approaches to solving complex business problems.



KEY CONCEPTS



Explore agile methods and data mining frameworks across the full data science lifecycle, from ideation to deployment, including data governance, ethics, securing organizational buy-in, and integrating AI to drive business value and innovation at scale in diverse business environments.

Course Description

This class introduces the agile and data science methodologies and incorporates ideation workshops, prototyping exercises, case studies, and data analysis assignments using data visualization, data mining techniques, and software like Python, Tableau, Figma, and ChatGPT. The workshops will guide students through the CRISP-DM framework for data science solutions, including user research, ideation, design, development, testing, and deployment. Prototyping exercises will allow students to iteratively develop and refine concepts. The course will incorporate agile sprints to simulate real-world data science product development, emphasizing user-centric design, iterative progress, continuous feedback, and collaboration. The capstone project will offer an opportunity to work in a team and apply the knowledge and skills acquired throughout the course to a specific business problem.



SCHEDULE OF CLASSES

**FALL
2026**

DATA SCIENCES + OPERATIONS

DSO 599

DEMOGRAPHY IN BUSINESS

Section(s): 16348

Mon/Wed: 2:00 PM – 3:20 PM

Instructor: Keith Robinson

 keithrob@marshall.usc.edu

Units: 3

Office: TBD

WHY TAKE THIS COURSE?



Understanding population trends is critical for success in today's data-driven business environment. This course gives you hands-on experience solving real-world problems using demographic data—skills that employers value highly. You'll build strategic thinking capabilities and develop insights that set you apart in competitive roles across Marketing, Operations, Finance, and beyond.

COURSE OBJECTIVES

This course equips students with the analytical and strategic skills needed to assess and respond to the impact of population dynamics on modern business challenges. Students will learn to identify demographic drivers behind industry disruptions and use data-driven approaches to craft effective, forward-looking business strategies across sectors.



KEY CONCEPTS

Case examination based on current problems select companies and industries are facing; Population dynamics; Data analytics and business strategy; Business projections for Healthcare, Food/Beverage, Real Estate, and Technology industries.



COURSE DESCRIPTION



DSO 599: *Demography in Business*

DSO 599: *Demography in Business* explores how shifts in population dynamics—such as aging patterns, changing household structures, and migration shifts—directly influence business operations, consumer behavior, and long-term strategy. Through four industry-focused modules, students will engage with real-world case studies from sectors like Real Estate, Technology, Food and Beverage, and Healthcare. These cases highlight current challenges faced by companies and invite students to apply demographic data in developing actionable solutions. Whether examining labor shortages at Walmart or analyzing site selection for Kroger's specialty stores, students will practice merging analytics with strategic thinking. The course is ideal for MBA and MSBA students seeking to become future-ready business leaders..



To watch the
promo video
click or scan
the QR Code



FALL
2026

DATA SCIENCES AND OPERATIONS

DSO 599

LARGE LANGUAGE MODELS FOR BUSINESS

Section: 16351

2nd half of the semester
MW 2:00–3:20 pm

INSTRUCTOR: Jinchi Lv

 jinchilv@marshall.usc.edu

Units: 1.5

Office: BRI 401A

WHY TAKE THIS COURSE?



Large language models (LLMs) are revolutionizing how businesses innovate and operate. Graduate students who master these *latest* technologies will gain a competitive edge in today's job market. In this course, you will learn LLM fundamentals and apply them to real-world business applications. By the end of the course, you will not only understand how LLMs work but also be equipped with the tools and insights to develop new business strategies leveraging LLMs.

COURSE OBJECTIVES



- Gain foundational knowledge of the architectures of LLMs
- Apply LLMs to real-world business applications
- Explore entrepreneurial opportunities and navigate challenges driven by LLMs

KEY CONCEPTS



- Transformer and BERT models
- Pre-training and fine-tuning
- In-context learning
- LLM evaluation and inference
- Prediction-powered inference and LLM-powered inference
- Online platform sentiment analysis
- Customize LLMs for investment decision-making

Course Description



Since the launch of ChatGPT in November 2022, large language models (LLMs) have rapidly transformed business and industry. This course will provide an *accessible* introduction to LLMs, focusing on real-world business applications. Think of this course as a hands-on guide that equips you with both foundational knowledge and practical skills of implementing LLMs for business innovations.

You will explore key concepts behind LLMs, stay up to date with latest developments, and learn the challenges and opportunities that come with deploying these models in business contexts. To bridge the gap between technical concepts and real-world business applications, each topic will be coupled with a business case study – allowing you to use LLMs in action. In the end, you will have both hands-on skills and necessary understandings to exploit LLMs in business contexts (or facilitating your own business adventures).



SCHEDULE OF CLASSES

DATA SCIENCES AND OPERATIONS

FALL 2026

DSO 599

Fast & Flow Strategy: Mastering Real-Time Business in AI Age

Professor Omar A. El Sawy

elsawy@marshall.usc.edu

Section 16352

Mondays 6:30 PM – 9:30 PM (ONLINE)

Office: Bridge-310B

Units 3.0



WHY TAKE THIS COURSE?

There is a groundswell forming around effective real-time management in practice in an increasing number of industries in both services and manufacturing. As the world goes faster and faster with AI learning faster than we do, and digital platform ecosystems become the next form of the corporation with its real-time interactions and real-time analytics-- it is critical to provide our MBA/MSBA/MSGSCMs with the skills to cope and thrive in such an environment and have the skills to be successful management professionals. The course will also introduce Fast & Flow strategy which enables both speed and thriving in this emerging AI-enabled environment ---where the physical and digital fuse. We will address robotic process automation, agentic AI, digital twins, Industry 4.0, IoT edge networks, and phygital capabilities. This is increasingly important in fast-moving industries such as automotive, energy, shipping, technology/AI businesses, healthcare, consumer services, entertainment, as well as in non-obvious areas such as tech-enabled agribusiness.

COURSE DESCRIPTION

- Recent case studies, articles, industry reports, current happenings.
- Frequent senior executive guest speakers who provide emerging practice insights.
- Course reference book: "Fusion Strategy: How Real-Time Data and AI will Power the Industrial Future," 2024 by V. Govindarajan & V. Venkatraman. Articles by instructor also.
- Cases at this date include Tesla, John Deere, Glovo, Zara, Lemonade Insurance, Port of Rotterdam, Dabbawala.
- Mid-term team projects: Identifying leaders and laggards in real-time management; Managing rhythms, tempos, flows, and disruptions for business processes.
- Final individual project proposal for Fast & Flow strategy for a company or non-profit.
- Fosters interactive discussion & peer learning.
- General management multi-disciplinary format.

COURSE OBJECTIVES

- Analyze the how's of mastering real-time business in the AI age and what it entails for all different levels of management.
- Operationalize concepts of real-time management and its critical significance in post-digital ecosystems.
- Identify potentials & challenges of real-time and how these managed and harvested
- Demonstrate the understanding of capabilities of underlying technologies of real-time management through field assignments.
- Analyze case studies of digital platform ecosystems and real-time data applications using the Fast & Flow framework and its implications for AI-driven business strategies.
- Design strategies for real-time decision-making using AI and digital platforms.
- Evaluate humanistic implications of AI deployment and the impact on organizational well-being and suggest ways of balancing speed with well-being.