**DSO 599 –** *FALL 2023*

*Data Analytics for the Game Industry*

*Section(s) – 16237/16239*

**Professor**

*Vic Bekarian & Clovy Meng*

**Email**

*Vicken.Bekarian@marshall.usc.edu (Vic)*

*Hongxiam@usc.edu (Clovy)*

**When**

*Mondays, 6:30 PM to 9:30 PM*

**Office**          **Units**

*TBD*               *1.5 Units*

## 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, but 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

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

- Clearly explain metrics needed for the business operation of most live products, with a focus on games
- Explain the unique aspects of game data analysis used for customer acquisition, retention, and monetization
- Analyze real game data and formulate business recommendations from insights you discover
- Build awareness of how segmentation of players can advance insights and actions framed among types of statistical modeling that support game development
- Build awareness of the most imminent challenges faced by the games industry that require innovative approaches to data analytics to overcome them

## KEY CONCEPTS

Examples of topics that will be covered throughout this course are:

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

## COURSE DESCRIPTION

The global games industry generated nearly $200 billion in 2022, with over half of this revenue generated on mobile devices alone. 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. Evolutions in data analytics have 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. You'll learn how business leaders in this space use data analytics to overcome industry challenges. This course will build practical skills by connecting analytics methodology to the ways we measure and report 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.

**USC**Marshall

School of Business

**DSO599 – Data Analytics for the Games Industry**

**Syllabus – Fall 2023 – Mondays – 6:30 pm - 9:30 pm   – 1.5 Units - 2nd Half of Semester**

**Professors:** Vic Bekarian and Hongxiaoxuan (Clovy) Meng
**Office:**  TBD

**Office Phone:** TBD
**Office Hours***:* TBD
**E-mail:** Vicken.bekarian@marshall.usc.edu;
Hongxiam@usc.edu

## Course Description

The global games industry generated nearly $200 Billion in 2022 with over half of this revenue generated on Mobile devices alone. 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. Evolutions in data analytics have enabled more data-informed decision making as well as ongoing marketing and product optimizations that create tremendous results.

These evolutions have mostly been seen in mobile gaming where the free-to-play business model has generated huge volumes of user data that impact how we design new games and improve existing ones. For all of its benefits, this business model has been quickly gaining momentum across all other platforms that games are published on. As the industry plans for the future, the role of data analytics only grows in its necessity for increasing the chances of a games success and for navigating the ever-growing landscape of competition and new challenges presented by shifting consumer behavior.

This course will help graduate students understand the basics of data analytics as it is used in the games industry and the challenges that it can be used to overcome as used by business leaders in this space.  This course will build practical skills by connecting analytics methodology to the ways we measure and report 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.

## Course Objectives
Upon successful completion of this course, you (students) will be able to:

1. Clearly explain the primary and secondary metrics needed to understand the business operation of most live-service products, but especially games.
2. Explain the unique aspects of game data analysis used for customer acquisition and retention
3. Explain the unique aspects of game data analysis and machine learning models used to maximize game monetization
4. Explain the impact of statistical test methods (such as A/B testing) on live operations and development of games

5. Analyze real gaming data and formulate business recommendations from the insights that they discover
6. Describe the social and business responsibility assumed by game analysts and incorporate this in different forms of communication
7. present information in a way that communicates confidence, acknowledges risks, and packages supplementary information to support analysis and findings
8. Work closely with others and use diverse perspectives to analyze problems, form hypotheses, and iterate solutions to create more than any individual could achieve
9. Identifythe most imminent challenges faced by the games industry that require innovative approaches to data analytics in order to overcome them
10. Utilizee segmentation and understanding of diverse users to advance insights and actions framed among types of statistical modeling that can support these projects

## Required Materials
Seif El-Nasr, Magy, Nguyen, Canossa, Drachen. *Game Data Science*. New York: Oxford University Press, 2021
 https://www.amazon.com/Game-Data-Science-Magy-El-Nasr/dp/0192897888

## Prerequisites and/or Recommended Preparation:
Students must demonstrate mastery of and access to at least one data analytics software, such as Python, R, and/or Excel. Methods used will include linear regression, A/B experiment statistical analysis (hypothesis testing), and clustering.

It is highly encouraged that students have already completed one of the following DSO courses: DSO 510, 530, 545, 547, 559.

## Data Analysis in the Class:

Data sources to be confirmed, but will include gameplay data from one or more types of Mobile F2P games. Data analysis during this class will focus on generating business insights including ways to:
1. Identify problem areas as targets for improvement in the First-Time User Experience (or FTUE), a critical section of retaining players and fundamental to building a stable, long-term business
2. Balance retention and purchase conversion in early stages of the player lifecycle to support optimizing lifetime value (or LTV), the chief metric for the unit economics of a games business
3. Identify early indicators of potentially higher LTV players
4. Identify early indicators of a player's likelihood to churn (or stop engaging with the product)
5. Set up and execute hypothesis testing to drive iterative design that results in better business performance
6. Segment users by playing and spending habits to determine who "valuable" players are in a F2P game's ecosystem

## Speakers invited: (depending on availability, but as examples):
To generate informative and organic discussion with multiplicative ways to learn, we recommend a panel of representatives from different levels and types of data analytics roles from a variety of major companies in the games space:

1. Bill Li, Vice President of Data Science at Jam City and former DSO lecturer at USC Marshall
2. Dhruv Bhargava, Sr. Director of Data and Analytics at 2K Mobile - or - Kier Groulx, Sr. Manager of Data Science at 2K Mobile
3. Kevin Wang, Sr. Manager of Data Analytics at Blizzard Entertainment
4. Matt Andersen, Associate Manager of Analytics at Blizzard Entertainment (USC MBA Class of 2020)
5. Randy Ramelb, Director of Product Management at Bungie (USC MBA Class of 2003)

With several back-up options from other major games publishers/developers
6. Xiaoyang Yang, Head of Data, AI, Security at Second Dinner Studios, formerly at Riot and Blizzard
7. Aleksandar Mirkovi, Director of Player Insights at Dreamhaven

## Course Notes:
Blackboard, Google Sheets, and Google Drive will be used for communicating course information and collecting assignments.

## Grading Policies:

Class participation accounts for 10% of your grade and consists of three equal contributors:
- engaging in class discussions,
- demonstrating concepts from assigned reading,
- and participation during classes that host guest speakers.

Class participation can be reduced for any student that is disruptive, distracting, or disrespectful towards lecturers, guests, or other students.

Grades for individual student contributions to team projects are calculated based on the results of peer reviews and any relevant observations about student participation in team forms including, but not limited to, in-class presentations.

Final grades represent how you perform in the class relative to other students. Your grade will not be based on a mandated target, but on your performance. Grades are assigned based on z-scores, with a goal of achieving a course GPA of 3.5.

## ASSIGNMENTS AND GRADING DETAIL

| Assignments | | Points | % of Grade |
|---|---|---|---|
| Homework Assignment(s) | | 300 | 30% |
| Data Analysis Project 1 - *Individual* | | 200 | 20% |
| Data Analysis Project 2 - *Group* | | 400 | 40% |
| Class participation | | 100 | 10% |
| | **TOTAL** | 1000 | 100% |

The assignments will assess your ability to answer questions relevant to an organization, your knowledge of key business metrics and your proficiency with the provided tools. They will also assess your ability to analyze data, formulate business insights, and put it into context for decision-makers.

Assignment overview:

1. **Homework Assignment 1: Python Lab Intro**
   *To be completed individually*
   a. Following instruction from class and the provided handout, using the data provided on Blackboard, complete Python Lab 1 using Python
   b. Handouts containing the instructions, examples, and submission format will be provided on Blackboard
   c. **Submission format:** Jupyter Notebook (.ipynb) file

2. **Homework Assignment 2: FTUE (New Player Onboarding) Analysis**
   *To be completed individually*
   a. Following instruction from class and the provided handout, complete the assignment requirements summarized below
   b. Students are asked to play through the first-time user experience (or "FTUE") of a mobile game, selecting from a pool of options provided by the instructors
   c. Students must give an intuitive evaluation of how well the FTUE introduces the player to a game and attempts to engage them to return to the game in future play sessions
   d. Students must identify primary and secondary metrics used to analyze the success of the FTUE, based on required reading and lecture material, and provide reasoning for their choices
   e. Finally, students must design one experiment to improve the FTUE and calculate sample size for their experiment based on some hypothetical data provided by the instructors
   f. **Submission format:** PDF (.pdf) file

3. **Homework Assignment 3: Experimentation and Basic Statistics in Python**
   *To be completed individually*
   a. Following instruction from class and the provided handout, using the data provided on Blackboard, complete Python Lab 2 using Python
   b. Handouts containing the instructions, examples, and submission format will be provided on Blackboard
   c. **Submission format:** Jupyter Notebook (.ipynb) file

4. **Data Analysis Project 1: Predictive Analytics for Player Behavior**
   *To be completed individually*
   a. Students are asked to build supervised models using Logistic Regression and Random Forests to identify players most likely to make a purchase based on a provided data set
   b. In the process of building their model(s), students are asked to compare trade-offs between evaluation metrics and communicate their reasoning behind their choices
   c. Students must then interpret model statistics to understand correlation between player in-game behavior and desired outcomes to generate basic recommendations for iterating the product's design for profitability
   d. As part of this project, students will also have to compare and explain the differences between supervised and unsupervised methodologies

    e.   This work will culminate in a written report submitted along with any accompanying analysis files (e.g. Jupyter Notebooks) to support

    f.   Project quality will be judged based on the execution of the analysis, written communication of the results, and substantiation of recommendations with analysis findings

    g.   **Submission format:** PDF (.pdf) file, with any supporting files (e.g. .ipynb files) attached to the submission

5. **Data Analysis Project 2: Player Segmentation and Clustering**
   *To be completed in groups of 4 selected by the students*
   
       a.   Students are asked to derive monetization and player engagement recommendations based on a provided data set from a real game

       b.   Some basic data cleaning and wrangling will be required to simulate this requirement in the field

       c.   Students will use Python to perform metrics analysis and unsupervised clustering methods such as K-Means and DBSCAN

       d.   From these analyses, students will then interpret the results and derive actionable insights. These will likely take the form of recommendations to target users based on insights gathered about their behavior.

       e.   This work will culminate in a written report as well as a presentation in class following guidelines laid out in the lectures preceding the final presentation

       f.   Project quality will be judged based on the execution of the analysis, written communication of the results, and substantiation of recommendations with their findings. Presentation quality will also be judged to determine part of this final project's grade as well as each individual student's contribution to their project group.

       g.   **Submission format:** PDF (.pdf) file, with any supporting files (e.g. .ipynb files) attached to the submission

       h.   **Presentation format:** 10-15 minute slide presentation summarizing the approach taken, assumptions and risks, insights gathered, and final recommendations

**Assignment Submission Policy:**
Assignments must be turned in on the due date/time electronically via Blackboard. Any assignment turned in late, even if by only a few minutes, will receive a grade deduction for every day it is late (for example, if your work is a B+ grade, you will be given a B grade if you turn it in late by up to one day). If your access to Blackboard is unavailable on the due date, you must deliver a hard copy at the beginning of class on that day. If you are unable to attend class on that day, make arrangements for it to be delivered to the classroom by the start of class. Late or not, however, you must complete all required assignments to pass this course.

**Evaluation of Your Work:**
We will do our best to make expectations for the various assignments clear and to evaluate them as fairly and objectively as we can. If you feel that an error has occurred in the grading of any assignment, you may, within one week of the date the assignment is returned to you, request a re-evaluation of the grade. Attach the original assignment to a written document or email and

explain fully and carefully why you think the assignment should be re-graded. Be aware that the re-evaluation process can result in three types of grade adjustments: positive, none, or negative.

## ADDITIONAL INFORMATION

### Add/Drop Process
The last day to add the class or withdraw without receiving a "W" is Oct. 25th, 2023. The last day to drop with a mark of a "W" is Nov. 23rd, 2023.

If you are absent 3 or more times prior to Nov. 23rd, 2023 (the last day to withdraw from a course with a grade of "W"), we may ask you to withdraw from the class by that date.

### Retention of Graded Coursework
Final exams and all other graded work which affected the course grade will be retained for one year after the end of the course *if* the graded work has not been returned to the student (i.e., if we returned a graded assignment to you, it is your responsibility to keep track of it)

### Technology Policy
Laptops are permitted during academic or professional sessions unless otherwise stated by the respective professor and/or staff.  In some sessions, laptops may be required to follow along with exercises during the lecture and students should come prepared with them. Laptops must not be used in a manner distracting to other students in the class. Using laptops for non-academic activities may result in loss of in-class laptop privileges for the entire course and impact a students participation score in class.

Use of other personal communication devices, such as cell phones, should be minimal and only as needed. These devices must not be used in a manner distracting to other students in the class.

### 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" (https://www.marshall.usc.edu/open-expression-statement).

### Statement on Academic Conduct and Support Systems

### Academic Integrity:
The University of Southern California is a learning community committed to developing successful scholars and researchers dedicated to the pursuit of knowledge and the dissemination of ideas. Academic misconduct, which includes any act of dishonesty in the production or submission of academic work, comprises the integrity of the person who commits the act and can impugn the perceived integrity of the entire university community. It stands in opposition to the university's mission to research, educate, and contribute productively to our community and the world.

All students are expected to submit assignments that represent their own original work, and that have been prepared specifically for the course or section for which they have been submitted. You may not submit work written by others or "recycle" work prepared for other courses without obtaining written permission from the instructor(s).

Other violations of academic integrity include, but are not limited to, cheating, plagiarism, fabrication (e.g., falsifying data), collusion, knowingly assisting others in acts of academic dishonesty, and any act that gains or is intended to gain an unfair academic advantage.

The impact of academic dishonesty is far-reaching and is considered a serious offense against the university. All incidences of academic misconduct will be reported to the Office of Academic Integrity and could result in outcomes such as failure on the assignment, failure in the course, suspension, or even expulsion from the university.

For more information about academic integrity see the student handbook or the Office of Academic Integrity's website, and university policies on Research and Scholarship Misconduct.

Please ask your instructor if you are unsure what constitutes unauthorized assistance on an exam or assignment, or what information requires citation and/or attribution.

**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*
Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

*988 Suicide and Crisis Lifeline* - *988 for both calls and text messages – 24/7 on call*
The 988 Suicide and Crisis Lifeline (formerly known as the National Suicide Prevention Lifeline) provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week, across the United States. The Lifeline is comprised of a national network of over 200 local crisis centers, combining custom local care and resources with national standards and best practices. The new, shorter phone number makes it easier for people to remember and access mental health crisis services (though the previous 1 (800) 273-8255 number will continue to function indefinitely) and represents a continued commitment to those in crisis.

*Relationship and Sexual Violence Prevention Services (RSVP)* - *(213) 740-9355(WELL) – 24/7 on call*
Free and confidential therapy services, workshops, and training for situations related to gender- and power-based harm (including sexual assault, intimate partner violence, and stalking).

*Office for Equity, Equal Opportunity, and Title IX (EEO-TIX)* - *(213) 740-5086*
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*

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 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) 740-0411*
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*
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*
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) 442-1200 – 24/7 on call*
Non-emergency assistance or information.

*Office of the Ombuds* - *(213) 821-9556 (UPC) / (323-442-0382 (HSC)*
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) 442-2850 or* otfp@med.usc.edu
Confidential Lifestyle Redesign services for USC students to support health promoting habits and routines that enhance quality of life and academic performance.

## Emergency Preparedness/Course Continuity

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

Please make sure you can access this course in Blackboard and retrieve the course syllabus and other course materials electronically. You should check Blackboard regularly for announcements and new materials. In the event of an emergency, the ability to access Blackboard will be crucial. USC's Blackboard learning management system and support information is available at blackboard.usc.edu.

## Legal Notices
Please note that this syllabus is a binding contract that you are agreeing to and by continuing with the class you agree to adhere to all clauses therein.

## Intellectual Property
You will be working with real projects and companies in this class. All of their materials, including anything you contribute to them will be considered the companies' intellectual property and they will retain all rights for unrestricted use for all materials.

In the case of projects that involve USC-owned patents that you are trying to commercialize, all intellectual property remains with USC unless they have a different agreement with you in writing that is created after you receive this syllabus but before you start any work on the project.
In case of a declared emergency if travel to campus is not feasible, the *USC Emergency Information* web site (*http://emergency.usc.edu/*) will provide safety and other information, including electronic means by which instructors will conduct class using a combination of Blackboard, teleconferencing, and other technologies.

All student work that is not for specific company projects is considered to be in the public domain unless the student turns it in with a copyright notice on it. Under no conditions may students commercialize anything they have created in this class without prior written consent of the professor who has the right to withhold consent for any reason.

Occasionally class may be filmed by the professor, clubs or other organizations. If you choose not to be filmed please tell the professor at the beginning of that class session and you will be seated out of the view of the camera. Choosing not to be filmed will have no impact on your grades in this class and is entirely optional.

**Data Confidentiality**
You will be working with real data and real companies. Unless designated in writing at the beginning, all data, analyses, algorithms, hypotheses, results, and conclusions are considered confidential. You may in interviews and on resumes state that you worked with the company on a project in the area of game data analytics but you must keep confidential all other information including but not limited to data, analyses, algorithms, hypotheses, results, and conclusions.

# COURSE CALENDAR/READINGS/CLASS SESSIONS

|  | Topics | Readings and Homework |
|---|---|---|
| **Week 1 - Oct. 16th**<br><br>Intro to the course<br><br>Games industry overview | - Course Expectations<br>- Lecturer bios<br>- Gaming industry overview and common business models<br>- Industry roles that will benefit from content of this course / when you'll use this during recruitment and in your career<br>- Introduction of Homework Assignment 1: Python Lab Intro | Read **Games Industry Glossary** Article, *Game Data Science* Chapter 1<br>*To be completed before class on Week 2*<br><br>**Homework Assignment 1:** Python Lab Intro (Lab 2)<br>*Due before the start of class on Week 2* |
| **Week 2 - Oct. 23rd**<br><br>Measuring experience in games<br><br>First-time User Experiences (FTUE) | - Customer journeys in games (player lifecycle)<br>- Sources of game data<br>- Common data analysis for games<br>- The first-time user experience (FTUE)<br>- Introduction of Homework Assignment 2: FTUE Analysis | **Homework Assignment 1 Due**<br><br>**Homework Assignment 2:** FTUE Analysis<br>*Due before the start of class on Week 3* |
| **Week 3 - Oct. 30th**<br><br>Statistical testing in game development | - Review of basic statistics concepts (mean, median, standard deviation)<br>- Statistical testing used broadly in the games industry<br>- Introduction of Homework Assignment 3: Experimentation | **Homework Assignment 2 Due**<br><br>**Homework Assignment 3:** Experimentation (Lab 3)<br>*Due before the start of class on Week 4*<br><br>Read **A Refresher on A/B Testing** Article, *Game Data Science* Chapter 3<br>*To be completed before class on Week 3* |
| **Week 4 - Nov. 6th**<br><br>Funnel methodology<br><br>Acquisition and Retention | - Game user base growth<br>- FTUE and its relation to early retention<br>- Funnel methodology and its importance for acquisition and retention<br>- Designing A/B tests to improve the user experience<br>- Introduction of Data Project 1: Player segmentation and clustering | **Homework Assignment 3 Due**<br><br>**Data Analysis Project 1:** Player segmentation and Clustering<br>*Due before the start of class on Week 6*<br><br>Read **Retention Framework - Keep Your Players Forever** Article, *Game Data Science* Chapter 6<br>*To be completed before class on Week 5* |

| | | |
|---|---|---|
| **Week 5 - Nov. 13th**<br><br>Long-term retention and monetization strategy | - User engagement and long term retention<br>- Monetization strategy and business models<br>- Widely used clustering methodology usage in game and insights derivation | Watch **A Deep Dive into the 12 Motivations: Findings from 400,000+ Gamers**<br>*To be complete before class on Week 6* |
| **Week 6 - Nov. 20th**<br><br>Guest(s) | - Guest speaker(s) from the games industry<br>- Introduction of Data Project 2: Predictive Analytics | **Data Analysis Project 1 Due**<br><br>**Data Analysis Project 2:** Predictive analytics for player behavior<br>*Submissions due before the start of class on the Final Exam Date*<br>*Final Presentations to be made during class on the Final Exam Date*<br><br>Read *Game Data Science* Chapter 7 and 8<br>*To be completed before class on Week 8* |
| **Week 7 - Nov. 27th**<br><br>Guest(s) | - Non-telemetry data sources to learn more about the games industry<br>- Get to know your stakeholders in the games industry | |
| **Final Exam Date - Dec. 11**<br><br>Presentations<br><br>Topics of interest | - Data project 2 presentations<br>- Game agent, generative models, and data technologies on the horizon for games<br>- Topics of Interest (to be surveyed from students earlier in the course and covered here) | **Data Analysis Project 2 (Written Submissions) Due**<br><br>**Data Analysis Project 2 Final Presentations**<br><br>**During University Scheduled Final Exam Date.** |

## Appendix I.  MARSHALL GRADUATE PROGRAMS LEARNING GOALS

### How DSO 599 Contributes to Marshall Graduate Program Learning Goals

| Marshall Graduate Program Learning Goals | DSO 599 Objectives that support this goal | Assessment Method* |
|---|---|---|
| | | |
| **Learning Goal #1: Develop Personal Strengths.** **Our graduates will develop a global and entrepreneurial mindset, lead with integrity, purpose and ethical perspective, and draw value from diversity and inclusion.** | | |
| 1.1 Possess personal integrity and a commitment to an organization's purpose and core values. | #6 | Communication of analysis results and final presentation |
| 1.2 Expand awareness with a global and entrepreneurial mindset, drawing value from diversity and inclusion. | #10 | Class discussion from assigned reading and group data projects |
| 1.3 Exhibit awareness of ethical dimensions and professional standards in decision making. | #6 | Communication of analysis results and final presentation |
| | | |
| **Learning Goal #2:  Gain Knowledge and Skills.** **Our graduates will develop a deep understanding of the key functions of business enterprises and will be able to identify and take advantage of opportunities in a complex, uncertain and dynamic business environment using critical and analytical thinking skills.** | | |
| 2.1 Gain knowledge of the key functions of business enterprises. | #1, #2, #3 | Homework assignments, class discussion, and group data projects |
| 2.2 Acquire advanced skills to understand and analyze significant business opportunities, which can be complex, uncertain and dynamic. | #2, #3, #5, #7, #9, | Homework assignments, class discussion, and group data projects |
| 2.3 Use critical and analytical thinking to identify viable options that can create short-term and long-term value for organizations and their stakeholders. | | Homework assignments, class discussion, and group data projects |
| | | |
| **Learning Goal #3: Motivate and Build High Performing Teams.** **Our graduates will achieve results by fostering collaboration, communication and adaptability on individual, team, and organization levels.** | | |
| 3.1 Motivate and work with colleagues, partners, and other stakeholders to achieve organizational purposes. | #8 | Class discussion and group data projects |
| 3.2 Help build and sustain high-performing teams by infusing teams with a variety of perspectives, talents, and skills and aligning individual success with team success and with overall organizational success. | #8 | Class discussion and group data projects |
| 3.3 Foster collaboration, communication and adaptability in helping organizations excel in a changing business landscape. | #8, #9 | Class discussion and group data projects |

**Appendix II. PEER EVALUATION FORM**

Grades for individual student contributions to team projects are assigned by me, based on my observations of the team's working dynamics, my assessment of the team's project quality, and thoughtful consideration of the information provided through your peer evaluations.

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 – 2 with 0 indicating does not meet expectations, 1 meets expectations and 2 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 10. In the box below, describe the exact contributions of each team member, including yourself.

| Team Members/<br>Assessment Criteria of Team Contributions | Team Member 1 | Team Member 2 | Team Member 3 | Yourself |
|---|---|---|---|---|
| **1. Role Performance** | | | | |
| **2. Assists Team Members** | | | | |
| **3. Listening and Discussing** | | | | |
| **4. Research and Information Sharing** | | | | |
| **5. Time Management** | | | | |
| **Total** | | | | |

Contribution details: