



ISE 599 – Data Analytics Consulting

Units: 3.0

Spring 2019 – Monday – 6:30 to 9:30 pm

Location: GFS 101

Instructor: Sid Mohasseb

Office: TBD

Office Hours: 5:30 to 6:30 on Mondays with prior appointment

Contact Info:

Email: Sid@Mohasseb.com

Cell: 949-254-9280

General timeline to respond to emails & calls: within 48 hours.

Special One on One or team remote automated calendaring system: <https://mohasseb.as.me/schedule.php>

Teaching Assistant: TBD

Office: TBD

Office Hours: TBD

Contact Info: TBD

Course Description: The course offers hands on project centric and experimental learning in using technical data analytics elements and business and execution factors. The course will utilize an industry driven approach via client(s) participation through specific project(s) in order to guide students to learn problem resolution methods as business analytics consultant by: i) understanding business requirements and value propositions, ii) defining the best technical approaches to solve the problem, iii) modeling technical solutions, iv) developing business sensitive presentations, and v) interacting with clients and practicing effective project management. The course will also employ various cases to explore concepts and methods. Student are thought to think and perform as a consultant addressing analytics and business challenges.

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

1. Describe effective Business requirements gathering for an analytics consulting engagement
2. Interface with clients and gain agreement on key business value propositions
3. Manage client expectations and incremental solution development through effective project management and team dynamics
4. Apply design thinking in data analytics solution development
5. Use data and analytics methods to frame and solve complex business problems
6. Explain analytics convergence to results based on business needs, as well as execution / technical limitations and external influencing factors.
7. Create reports, visualizations and presentations to deliver analysis results to a business audience
8. Deliver a compelling and value centric story to connect analysis with business outcomes as a consulting team.
9. Use analytics on cases to assess and predict short- and long-term business impacts, as well as broad legal and privatization factors.

Prerequisite(s): Students are expected to be proficient in use of analytics methods. The class offers a platform for application / use centric learning based on the assumptions that the students have access to appropriate tools and are capable of performing analytics on the data to be provided by clients and other external data. Student should have working knowledge of data cleansing, complex regression modeling, clustering and classification techniques, basic machine learning techniques, etc. Students should be knowledgeable about statistics and statistical modeling. ISE 529, or equivalent upon approval, is a prerequisite class.

Course Notes: All class slide presentations will be posted to Blackboard prior to the class. The course will use a videos from various sources. The video links will be provided in the class presentation. A number of cases and articles will be used to explore concepts. Cases and articles can be purchased from Harvard Business School Press Site (HBSP). Additional reading, otherwise not available for purchase will be provided via blackboard.

Description and Assessment of Assignments: Assignments will be discussed in class and success / failure criteria provided when applicable.

Recommended Preparation: Readings of defined book chapters, cases and articles prior to the class is mandatory.

Additional Policies: Except when specifically indicated during interactive working sessions or specific polling activities – laptop or phone use is not allowed in the class.

Assignment Rubrics: Criteria for grading the class project will be provided in class.

Assignment Submission Policy: All assignments MUST BE SUBMITTED IN CLASS. Assignments / presentations / reports must be printed and stapled together and prepared according to the length and content guidelines provided in the syllabus. LATE SUBMISSIONS will not be accepted or get any partial grades unless 1) the delayed submission is in advanced agreed to by the professor in writing (email) or 2) health issues preventing the student to deliver the assignment on time can be proven. . If you are unable to attend class on the day any particular assignment is due, it is YOUR RESPONSIBILITY to 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.

Required Readings and Supplementary Materials:

Cases & Articles

- Case #1 - Dow Chemical Co. - Big Data in Manufacturing ; IVEY Publishing W17696 ; November 2017
- Case #2 – Kiana Analytics – CLASS PROJECT (link to data to be provided in class)
- Article #1 - Design Thinking Ready for Prime Time; David Kelly; Harvard Business School: ROT207
- Article #2 - Introduction to Design Thinking; Institute of Design at Stanford University (provided on Blackboard)
- Article #3 - The 7 Sins of Performance Measurement, MIT Sloan; By: Michael Hammer ; SMR241
- Article #4 - Digital Transformation Opens new question, MIT Sloan Fall 2018; By: Hal Gregersen; SMR711

****** LINK TO PURCHASE ARTICLES & CASE FROM HBR SITE ******

<https://hbsp.harvard.edu/import/594710>

Books

- The Caterpillar's Edge: Evolve, Evolve Again and Thrive in Business; by Sid Mohasseb; ISBN-13: 978-0996636315; Chapter 1 thru 8.
- Storytelling with Data: A Data Visualization Guide for Business Professionals; by Cole Nussbaumer Knaflic - ISBN-13: 978-1119002253; Chapters 1 thru 10

****** AVAILABLE AT USC BOOKSTORE OR OTHER ONLINE STORES ******

Grading Policies and Breakdown:

Exams: Students receive an individual grade (not as a team) on the Mid-term and the Final exams which will include all material covered in class as well as all assignments (cases, articles, video content, and book chapters) up to the point / date of the exams (final will include all material covered in the semester). Exams may include short essays as well as true / false, multiple choice and fill in the blank questions. Exams may include both in-class and take-home components.

Participation: Students receive an individual (not as a team) participation grade. Effective participation is about contribution to learning process and not a function of attendance. You are expected to:

- Be prepared to discuss cases, articles and client projects actively / You are expected to add value to the class discussions – note: Positive participation is thoughtful contribution. Offering points and counterpoints aimed at exploring concepts are encouraged – purposeless argumentation is discouraged.
- Although during class discussions you may be asked to participate, you are expected to show initiative by proactive contribution and involvement in discussions
- Team participation / peer review scores for client project (class project) will contribute to your overall participation grade.

To improve communications and facilitate the participation process, certain survey and polling tools may be utilized in class to capture interactive responses.

Client Project: The class project will be based on client (s) needs and is the largest component of your grade. It is divided into two phases and each phase will get a separate grade. ALL team members will get the same grade based on the team’s performance.

- Phase I of the project will focus on approach and results for requirements gathering, identification & framing the problem, initial data exploration thoroughness, project management, effective and creative hypothesis and solution approach (s) and appropriateness of analytics methodologies proposed for solving the client’s challenge and creating business value.
- Phase II of the project will be focused on project management, effective convergence of analytics efforts to results, depth and scope of analytics, outcomes relevant to addressing value creation, effective visualization, storytelling and client expectation management and meeting project objectives.

Breakdown:

<u>Assginments</u>	<u>Points</u>	<u>% of Grade</u>
EXAMS / TESTS		
Mid-Term	150	15.0%
Final Exam	200	20.0%
CLASS PARTICIPATION	150	15.0%
CLIENT PROJECT		
Phase I – Problem Definition & Solution Approach	250	25.0%
Phase II – Solution Formulation & Presentation	250	25.0%
TOTAL	1,000	100.0%

Course final grades will be determined using the following scale

A	95-100	B	83-86	C	73-76	D	63-66
A-	90-94	B-	80-82	C-	70-72	D-	60-62
B+	87-89	C+	77-79	D+	67-69	F	59 & below

Course Schedule: A Weekly Breakdown (Page 1 of 2): *As of December 23rd, -2018 (subject to change based on actual class progress & activities)*

Dates:	Topics/ Activities	Readings and Homework	Deliverables and Due Dates
Jan 7 th , 2019	<ul style="list-style-type: none"> Administrative Review The Consultant's journey Overview Project Management Framework & Work Stream Management 	<ul style="list-style-type: none"> In Class Student Introductions Class Policies & Grading Class Objectives & Overview 	<p><i>Note: team Assignment Finalized next week & be ready to discuss the assigned case & Articles Next week</i></p>
Jan 14 th , 2019	<ul style="list-style-type: none"> First Class Quick Review Introduction of Client's broad project Design Thinking and Analytics - intro Business basics & Operations Mgt Value Chains & Stakeholders Creating Landscape Canvas 	<ul style="list-style-type: none"> Article # 1 - Design Thinking Ready for Prime Time Article #2 – An Introduction to Design Thinking – Process GUIDE CLINET DATA AVAILABLE 	<ul style="list-style-type: none"> DUE: Project team selection finalized DUE: Ready for Article #1 & #2 Discussion
Jan 28 th , 2019	<ul style="list-style-type: none"> Data Genome Map & Signal Buckets Analytics Across Value Chain & Stakeholders & Examples Interview guide development Requirement Gathering Framework Client on-Boarding Framework Initial Problem exploration – Homework (Devices / People / space relationships: Associations, Trends, predictions) 	<ul style="list-style-type: none"> Cat. Edge Book #1: CH 1 Discussion Landscape Canvas Reports 	<ul style="list-style-type: none"> DUE – FIRST PROJECT DELIVERY: business environment & competitive landscape report: Landscape canvas and value chain report – APPLY DESIGN THINKING – <u>NOTE: 5-page maximum report.</u> <p>Be ready with i) data questions, ii) interview questions and iii) Problem Identification Alternatives next week</p>
Feb 4 th , 2019	<ul style="list-style-type: none"> Optimization vs. Strategic Approach to Analytics Client Initial discussion of Project & Client Objectives – problem statements 	<ul style="list-style-type: none"> Story / Data Book #2: Ch: 10 SPEAKER IN CLASS 	<ul style="list-style-type: none"> DUE - SECOND PROJECT DELIVERY: <ol style="list-style-type: none"> Interview guide for client discussion First level understanding of data quality / issues / opportunities Data clarification Questions Initial Problem exploration report <u>NOTE: 5-page maximum report.</u>
Feb 11 th , 2019	<ul style="list-style-type: none"> Understanding and linking business & Analytics problem Connected Signals & Interplay Convergence to results – Funnel Model Interactive Team Coaching sessions <ul style="list-style-type: none"> Live session on Ideation Optimization Vs. Strategic solutions Exploration results discussion – Alternative problems Prioritizations 	<ul style="list-style-type: none"> Cat. Edge Book #1: Ch: 3,4 & 5 	<ul style="list-style-type: none"> DUE: THIRD PROJECT DELIVERY: <u>NOTE: 5-page maximum report.</u> <ol style="list-style-type: none"> Detailed Work Stream Assignment Second level understanding of data quality / issues / opportunities - post client feedback External Data sources identified and logic of use developed High Level Problem Resolution Approach Statements & Resulting value creation Data Genome vs. signal Buckets
Feb 25 th , 2019	<ul style="list-style-type: none"> What is Insight & Paths to 7 Sins Article Discussion Visualization & Story telling fundamentals Problem Definition / Interactive Team Coaching sessions <ul style="list-style-type: none"> Finalized Hypothesis Technical Plan Review Presentation Story Review 	<ul style="list-style-type: none"> Article #3 – 7 Sins of Performance Management Story / Data Book #2: Ch: 9 Cat. Edge Book #1: Ch: 2 	<ul style="list-style-type: none"> DUE: FOURTH PROJECT DELIVERY: <ol style="list-style-type: none"> Final problem definition reports based on discovery against data - Due: Finalized Value proposition and report Solution Approach report: technical approach, business analytical hypostasis report

Dates:	Topics/ Activities	Readings and Homework	Deliverables and Due Dates
Mar 4 th , 2019	<ul style="list-style-type: none"> Mid-Point client project Phase 1 team presentations 	<ul style="list-style-type: none"> Mid-point Presentations & reports 	<ul style="list-style-type: none"> Due: FIFTH PROJECT DELIVERY: Phase 1 project report and presentation PowerPoint & verbal
Mar 18 th , 2019	<ul style="list-style-type: none"> MID TERM – In class (open book & notes – no computer) Client Problem Verification Session – Client check-in 	<ul style="list-style-type: none"> SPEAKER in CLASS 	<ul style="list-style-type: none"> DUE: Mid-Term Exam (all material to this point) DUE: Be prepared to discuss Client expectations – goal adjustment conversation based on your teams and other team’s presentations
Mar 25 th , 2019	<ul style="list-style-type: none"> Interactive Team Coaching sessions <ul style="list-style-type: none"> Objective – the clear problem to solve & why Hypothesis solution approach & business connectivity lock down Proposed Technical approach review The Three Missions of using analytics to solve business problems dynamically & Dynamic Strategy guidelines 	<ul style="list-style-type: none"> Cat. Edge Book #1: Ch: 6, 7 Article #4 - Digital Transformation Opens new question 	<ul style="list-style-type: none"> Be ready to discuss assigned article DUE: SIXTH PROJECT DELIVERY: <ol style="list-style-type: none"> Adjusted problem & Solution statements Gaps & Solutions report Finalized Solution Framework against clear business value propositions
Apr 1 st , 2019	<ul style="list-style-type: none"> Art & Science of storytelling Case Discussion Interactive Team Coaching sessions <ul style="list-style-type: none"> Story line review Business / value connectivity review Success Metrics 	<ul style="list-style-type: none"> Story / Data Book #2: Ch: 1,2,3 & 4,5,6,7 & 8 Dow Chemical Co.: Big Data in Manufacturing 	<ul style="list-style-type: none"> DUE: Ready for Case Discussion: Be ready for class discuss around: Verification of business value delivery and technical approach as well your first structure for client story representation.
Apr 8 th , 2019	<ul style="list-style-type: none"> Class Presentations – part II class project – client project 	<ul style="list-style-type: none"> Presentation & report 	<ul style="list-style-type: none"> DUE: SEVENTH PROJECT DELIVERY: Phase 2 project report and presentation PowerPoint & verbal
Apr 15 th , 2019	<ul style="list-style-type: none"> Class Convergence session – hands on consolidation of team outputs and story <ul style="list-style-type: none"> Consolidated perspective Areas of confirmation Business value clarification 	<ul style="list-style-type: none"> Presentation & report 	<ul style="list-style-type: none"> DUE: EIGHT PROJECT DELIVERY: One-page learning report by each team – value recognition from other teams and method of integration
Apr 22 nd , 2019	<ul style="list-style-type: none"> Final Presentation of results to Client 	<ul style="list-style-type: none"> Presentation & Client Discussion 	<ul style="list-style-type: none"> DUE: FINAL PROJECT DELIVERY: <ul style="list-style-type: none"> Consolidated Client report: Value verification, Documentation & Roll-out plan plus scaling plan & success metrics
May 6 th , 2019	<p>Final Exam ALL INCLUSIVE – IN CLASS Defined by USC Agenda</p>		

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 scientific misconduct, <http://policy.usc.edu/scientific-misconduct>.

Support Systems:

Student Counseling Services (SCS) – (213) 740-7711 – 24/7 on call

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

National Suicide Prevention Lifeline – 1 (800) 273-8255

Provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week. www.suicidepreventionlifeline.org

Relationship and Sexual Violence Prevention Services (RSVP) – (213) 740-4900 – 24/7 on call

Free and confidential therapy services, workshops, and training for situations related to gender-based harm. engemannshc.usc.edu/rsvp

Sexual Assault Resource Center

For more information about how to get help or help a survivor, rights, reporting options, and additional resources, visit the website: sarc.usc.edu

Office of Equity and Diversity (OED)/Title IX Compliance – (213) 740-5086

Works with faculty, staff, visitors, applicants, and students around issues of protected class. equity.usc.edu

Bias Assessment Response and Support

Incidents of bias, hate crimes and microaggressions need to be reported allowing for appropriate investigation and response. studentaffairs.usc.edu/bias-assessment-response-support

The Office of Disability Services and Programs

Provides certification for students with disabilities and helps arrange relevant accommodations. dsp.usc.edu

Student Support and Advocacy – (213) 821-4710

Assists students and families in resolving complex issues adversely affecting their success as a student EX: personal, financial, and academic. studentaffairs.usc.edu/ssa

Diversity at USC

Information on events, programs and training, the Diversity Task Force (including representatives for each school), chronology, participation, and various resources for students. diversity.usc.edu

USC Emergency Information

Provides safety and other updates, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible. emergency.usc.edu

USC Department of Public Safety – UPC: (213) 740-4321 – HSC: (323) 442-1000 – 24-hour emergency or to report a crime.

Provides overall safety to USC community. dps.usc.edu