DSO 599 — *Accelerating Machine Learning Driven Business Transformation*
Section – 16338 / 16339 (ONLINE)

Professor
Sudi Bhattacharya

Email
sudibhat@marshall.usc.edu

When
Saturday, 9:00 AM – 11:50 AM (ONLINE)

Office
TBD

Units
1.0 – 3.0

WHO SHOULD TAKE THIS COURSE?

Directors, Senior Managers, Managers who are leading or going to lead initiatives to develop a business transformation strategy using Machine Learning and lead a team to develop machine learning models to enhance key business processes, save cost and improve customer engagement.

COURSE OBJECTIVES

1. Describe how machine learning (ML) can help businesses delight their customers
2. Build ML driven business transformation strategies and implementation roadmaps
3. Explain the strategic importance of Cloud and data platform modernization in an ML-driven transformation journey
4. Describe the technology components, team structure, skillsets and operating models required for a successful ML transformation
5. Using an appreciation for governance implications of ML and data, build a responsible and trusted ML platform
6. Demonstrate an understanding of epic, user story and backlog based "agile ways" of working

KEY CONCEPTS

1. Technology led Business Transformation
2. Transformative potential of Machine Learning
3. Cloud and Technology Modernization
4. Big Data Modernization in Cloud
5. Importance of Cloud and Big Data in Machine Learning
6. Agile way of working
7. Developing ML models embracing agile methods
8. Development Lifecycle of ML Models
9. Solution Architecture of ML Solutions
10. Production ML and Post deployment challenges
11. ML Operating Model
12. Building a high-performance team

COURSE DESCRIPTION

This course enables business and technology executives to successfully lead Machine Learning driven business transformation programs on the Cloud. Machine Learning has the potential to reshape, redefine, and transform business processes. Advances in Cloud Computing is making more processing power, unlimited storage, and elastic resources available to develop high-performance ML applications. Despite the promise, harnessing the power of Cloud and ML for long-term business benefit has turned out to be challenging.

Companies have struggled with how to successfully navigate long-term ML fueled transformation that requires identifying the appropriate use cases for ML, instituting agile ways of working, building a skilled team, establishing a new operating model, grasping the impact of technology and architecture choices while delivering on short term business goals. In many cases, business technology executives in charge of these programs are left to figure out these complexities on their own. This course is designed to bridge the gap.

This course will start with discussing how modern companies are successfully implementing ML in the Cloud to develop new ways of doing business, to increase efficiency of business processes and rapidly innovate in the face of competitive pressure. Armed with current industry use cases of ML, students will start building outlines of a roadmap of ML implementation for their own organizations. They will learn the common pitfalls and challenges faced by the implementors of an ML roadmap along with current industry best practices and implementation methodology that will improve their ability to execute a long-term strategy for ML-enabled business transformation.

Students will also gain a deep appreciation of the modern technology platforms such as Cloud Computing, Data Modernization in Cloud and ML in Cloud. The course will discuss how to build high-performance teams with the right skillsets and an efficient operating model that are essential to implement an ML-driven enterprise business transformation program successfully.

DSO 599 – Accelerating Machine Learning Driven Business Transformation
Spring 2023
Saturday: 9:00 - 12:00 noon *(3.0 Units)*

Instructor:	*Sudi Bhattacharya*
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COURSE OBJECTIVES

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

1. Describe how ML-driven business transformation programs can help businesses delight their customers through responsiveness and innovation
2. Build ML driven business transformation strategies and implementation roadmaps and get setup for long term success

3. Explain the strategic importance of Cloud and data platform modernization in an ML-driven transformation journey
4. Describe the technology components, team structure, skillsets and operating models required for a successful modern ML transformation
5. Using an appreciation for governance implications of ML and data, build a responsible and trusted ML platform
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COURSE MATERIAL

Cases: We will read, analyze and discuss nice business cases in this course.

Case #1
Vodafone: Managing Advanced Technologies and Artificial Intelligence - William R. Kerr; Emer Moloney
Pub Date: Feb 20, 2018, Source: Harvard Business School Product #: 318109-PDF-ENG, 25 page(s)

Case #2
Uber: Applying Machine Learning to Improve the Customer Experience - *Mohanbir Sawhney, Birju Shah, Ryan Yu, Evgeny Rubtsov, Pallavi Goodman*
Pub Date: Jan14, 2020, Source: Kellogg School of Management Product #: KE1161-PDF-ENG, 21 page(s)

Case #3
Transformation at ING (A): Agile
- William R. Kerr, Federica Gabrieli, Emer Moloney
Pub Date: Jan 16, 2018, Source: Harvard Business School Product #: 818077-PDF-ENG, 19 page(s)

Case #4
Evaluating the Cognitive Analytics Frontier
Adam Robert Pah, Alanna Lazarowich, Charlotte Snyder
Pub Date: Jan17, 2018, Source: Kellogg School of Management Product #: KE1046-PDF-ENG, 21 page(s)

Case #5
Blackbox Chatbot: Designing Natural Language Conversations with Data
Tamas Makany, Lipika Bhattacharya
Pub Date: June 6, 2022, Source: Singapore Management University #: SMU-068-PDF-ENG, 21 page(s)

Case# 6
Predicting Consumer Tastes with Big Data at Gap
Ayelet Israeli, Jill Avery
Pub Date: May 30, 2017, Source: Harvard Business School Product #: 517115-PDF-ENG, 27 page(s)

Case# 7
Artificial Intelligence and the Machine Learning Revolution in Finance: Cogent Labs and the Google Cloud Platform (GCP)
Lauren H. Cohen, Christopher J. Malloy, William Powley
Pub Date: Feb 14, 2018, Source: Harvard Business School Product #: 218080-PDF-ENG, 27 page(s)

Case# 8
Verily Life Sciences and Machine Learning
Kevin A Shulman, Kevin Ho
Pub Date: July 28, 2020, Source: Stanford Graduate School of Business Product #: SM335-PDF-ENG, 22 page(s)

Case #9
Tapping into a Digital Brain: AI-Powered Talent Management at Infosys
Mohanbir Sawhney, Varun Poddar, Charlotte Snyder
Pub Date: July 14, 2018, Source: Kellogg School of Management Product #: KE1222-PDF-ENG, 13 page(s)

Articles.
We will assign readings will consist of journal articles published in outlets such as Harvard Business Review to gain appreciation of application of ML in modern business environments and associated challenges and critical success factor. It is possible to access electronic copies of these articles for free through the USC libraries. Following articles are going be in the reading assignments:

1. What Every Manager Should Know About Machine Learning (A1)
2. Building the AI Powered Organization (A2)
3. For an Agile Transformation Choose the Right People (A3)
4. The Power of Natural Language Processing (A4)
5. Does Your Company Really Need a Chatbot? (A5)
6. "Data Is the New Oil" from Prediction Machines: The Simple Economics of Artificial Intelligence (A6)
7. How a Pharma Company Applied Machine Learning to Patient Data (A7)
8. Ethical Implications of AI ML and Big Data (A8)
9. Root Out Bias at Every Stage of Your AI-Development Process (A9)
10. We Need AI That Is Explainable, Auditable, and Transparent (A10)
11. Artificial Intelligence in Human Resource Management: Challenges and a Path Forward(A11)
12. Getting AI to Scale (A12)
13. How to Win with Machine Learning (A13)

GRADING

An individual student's grades will be calculated based on the following components. It is important to note that exceptional work or effort by a student will be recognized and rewarded. Similarly, plagiarism in written assignments will be penalized according to USC rules and guidelines.

Categories	Assignments	Points	% of Overall Grade
Class Participation		100	10%
Write-up (Group Assignment)	*ML-Driven Business Transformation Strategy*	100	10%
No Code ML Model Development and Deployment on Google Cloud (Group Assignment)	*Creating and Deploying an ML Model in Google Cloud AutoML (No Code)*	100	10%
Class Quizzes (Individual Assignment)	*10 Quizzes, 5 Questions each (Total 50 Questions, 5 points each)*	250	25%
Mid-term Examination	*Multiple Choice Scenario based (1hr, 30 Questions, 5 points each)*	150	15%
Final Examination	*Multiple Choice Scenario based (2hrs, 60 Questions, 5 points each)*	300	30%

	Total	1000	100%

CLASS PARTICIPATION

Students are expected to participate in the lectures, an especially when discussing case studies. Participation grades will be based on the quality of a student's contribution to the lectures. Participation will be graded by the professor in each class.

Students who are passionate, curious and willing to engage in class debate will receive higher participation grades. More importantly, this will create more exciting and engaging learning experience.

 A full explanation of what constitutes *effective class participation* is described in Appendix III.

Assignments

Write-up: Students will be expected to submit one 2-page (no more 1000 words) write-up on one topic, namely, ML-driven business transformation strategy. A business problem will be provided to all the students and students will be placed in groups of 3 or 4 students depending on the class size. Each group will have to develop a write up to solve the business problem using modern natural language processing (NLP) AI technology.

Detailed information about what is expected for this deliverable will be discussed in the first class. The homework will be due on the April 22nd before class.

No Code ML Model Development and Deployment on Google Cloud: Students will be expected to build a NoCode Machine Learning Solution on Google Cloud. A business problem will be provided to all the students and students will be placed in groups of 3 or 4 students depending on the class size. Each group will have to develop the solution, prepare a writeup and do a demonstration of their project.

Detailed information about what is expected for this deliverable will be discussed in the seventh class. Presentation will be scheduled for 15 minutes for each group on the April 29th, 2023

Class Quizzes: Students will take a 5-question quiz in 10 classes based on reading assignments and topics covered in previous class. There will be no quizzes on the first class, midterm day and final examination day.

Mid-Term and FINAL Examination

The mid-term examination will be on the 7th week of class for a period of one hour. The exam will consist of 30 scenario based multiple choice questions.

The Final examination will be on the 16th week of class for a period of two hours. The exam will consist of 60 scenario based multiple choice questions.

THE IMPORTANCE OF COURSE EVALUATIONS

Students will be asked to submit an "unofficial" course evaluation to the instructor halfway through the class, as well as the official evaluation at the end of the semester. These evaluations are valuable because they allow the course to be continuously improved, based on feedback from students and instructor observations. Furthermore, the unofficial evaluation allows you to provide feedback directly to the instructor, if there is anything that you would like to see changed in the course. An example of what will be asked of students during the midpoint evaluation is shown in Appendix IV.

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

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."

Session	In Class Discussion and Learning	Assigned Readings and Homework for Next Week
Week 1 Saturday 9:00 - 12:00 PT January 14th, 2023 **Course Overview and Introduction**	We will set up the roadmap for the course, discuss what we plan to learn and how we plan to learn it. We discuss basics of Machine learning. We explore multiple use cases and application of ML in those areas.	**Assigned Case:** *Vodafone: Managing Advanced Technologies and Artificial Intelligence (C1)* **Assigned Article:** *What Every Manager Should Know About Machine Learning (A1)* **Tutorial**: *Machine Learning (T1)*
Week 2 Saturday 9:00 - 12:00 PT January 21st, 2023 **ML for Business Process Transformation**	**Case Discussion:** *Vodafone: Managing Advanced Technologies and Artificial Intelligence* **Article Discussion** *What Every Manager Should Know About Machine Learning* **Class Quiz 1** **Tutorial Discussion:** Machine Learning **Learnings:** How to find opportunities for Machine Learning	**Assigned Case**: *Uber: Applying Machine Learning to Improve the Customer Experience (C2)* **Assigned Article**: *Building the AI Powered Organization (A2)*
Week 3 Saturday 9:00 - 12:00 PT January 28th, 2023 **ML for Business Process Transformation - Continued**	**Case Discussion:** *Uber: Applying Machine Learning to Improve the Customer Experience* **Article Discussion**: *Building the AI Powered Organization* **Class Quiz 2** **Learnings:** Challenges of AI Projects and how to overcome them	**Assigned Case**: *Transformation at ING (A): Agile (C3)* **Assigned Article:** *For an Agile Transformation Choose the Right People (A3)* **Tutorial**: Agile Methodologies (*T2*)
Week 4 Saturday 9:00 - 12:00 PT	**Case Discussion:** *Transformation at ING (A): Agile*	**Assigned Case**: *None*

February 4th, 2023 **Agile methodologies**	**Tutorial Discussion:** Agile Methodologies **Article Discussion:** *For an Agile Transformation Choose the Right People* **Class Quiz 3** **Learnings:** What are the basic core aspects of Agile ways of working? Why Agile is particularly important for AI/ML projects?	**Assigned Article:** *The Power of Natural Language Processing (A4)*
Week 5 Saturday 9:00 - 12:00 PT February 11th, 2023 **Public Cloud**	**Case Discussion:** *None* **Article Discussion:** *The Power of Natural Language Processing* **Class Quiz 4** **Learnings:** We dive deep into understanding Public Cloud and Its transformational potential	**Assigned Case**: *Evaluating the Cognitive Analytics Frontier (C4)*
Week 6 Saturday 9:00 - 12:00 PT February 18th, 2023 **Big Data and Cloud**	**Case Discussion:** *Evaluating the Cognitive Analytics Frontier (C4)* **Class Quiz 5** **Learnings:** We dive deep into understanding Big Data and Its transformational potential. We explore what role Cloud can play in Big Data systems	**Assigned Case**: *Blackbox Chatbot: Designing Natural Language Conversations with Data (C5)* **Assigned Article:** *Does Your Company Really Need a Chatbot? (A5)*
Week 7 Saturday 9:00 - 12:00 PT February 25th, 2023 **Cloud, Big Data and ML +** **Mid Term Examination**	**Case Discussion:** *Blackbox Chatbot: Designing Natural Language Conversations with Data (5)* **Learnings:** We discuss why Cloud and Big Data are important in the context of Machine Learning Systems **Mid-term Examination:** One hour Multiple Choice 30 questions	**Assigned Case**: *Predicting Consumer Tastes with Big Data at Gap (C6)* **Assigned Article:** *Data is the new oil (A6)*

Week 8 Saturday 9:00 - 12:00 PT March 4th, 2023 **Deep Learning, Computer Vision on the Cloud**	**Case Discussion**: *Predicting Consumer Tastes with Big Data at Gap* **Article Discussion** Data in the new oil **Class Quiz 6** **Learnings:** We discuss Machine Learning Solutions - Lifecycle and Architecture	**Assigned Case**: *None* **Assigned Article:** 1. Ethical Implications of AI ML and Big Data (A8) 2. Root Out Bias at Every Stage of Your AI-Development Process (A9)
Week 9 Saturday 9:00 - 12:00 PT March 11th, 2023 **Modern Recommender Systems on the Cloud**	**Case Discussion:** *None* **Article Discussion** 1. Ethical Implications of AI ML and Big Data (A8) 2. Root Out Bias at Every Stage of Your AI-Development Process (A9) **Class Quiz 7** **Learnings:** We continue our discussion of Machine Learning Solutions - Lifecycle and Architecture for Recommender Systems	**Assigned Case**: *Artificial Intelligence and the Machine Learning Revolution in Finance: Cogent Labs and the Google Cloud Platform (GCP) (C7)* *How a Pharma Company Applied Machine Learning to Patient Data (A7)*
Week 10 Saturday 9:00 - 12:00 PT March 18th, 2023	**Spring Break**	
Week 11 Saturday 9:00 - 12:00 PT March 25th, 2023 **Modern Natural Language Processing on the Cloud**	**Case Discussion:** *Artificial Intelligence and the Machine Learning Revolution in Finance: Cogent Labs and the Google Cloud Platform (GCP) (C7)* **Article Discussion** *How a Pharma Company Applied Machine Learning to Patient Data* **Class Quiz 8** **Learnings:**	**Assigned Case**: *Verily Life Sciences and Machine Learning (C8)* **Assigned Articles**: We Need AI That Is Explainable, Auditable, and Transparent (A10)
Week 12 Saturday 9:00 - 12:00 PT April 1st, 2023	**Case Discussion:** *Verily Life Sciences and Machine Learning (C8)* **Article Discussion:**	**Assigned Case:** *Tapping into a Digital Brain: AI-Powered Talent Management at Infosys (C9)*

Production Machine Learning	We Need AI That Is Explainable, Auditable, and Transparent **Class Quiz 9** **Learnings:** *We focus on understanding the challenges of Machine learning system in production and learn about MLOps.*	**Assigned Article:** *Artificial Intelligence in Human Resource Management: Challenges and a Path Forward (A11)*
Week 13 Saturday 9:00 - 12:00 PT April 8th, 2023 **Trusted Machine Learning - Modern ML Governance**	**Case Discussion:** *Tapping into a Digital Brain: AI-Powered Talent Management at Infosys* **Article Discussion:** *Artificial Intelligence in Human Resource Management: Challenges and a Path Forward* **Class Quiz 10** **Learnings:** *We deep dive into how to build trusted AI models and how we can control biases creeping into our data, algorithm, and methodology.*	**Assigned Case**: None **Assigned Articles**: 1) Getting AI to Scale (A12) 2) How to Win with Machine Learning (A13) 3) <u>Rules of Machine Learning: Best Practices for ML Engineering</u>,
Week 14 Saturday 9:00 - 12:00 PT April 22nd, 2023 **Wrap up and Lessons from The Trenches**	**Writeup Due** **Article Discussion:** 1) Getting AI to Scale 2) How to Win with Machine Learning 3) <u>Rules of Machine Learning: Best Practices for ML Engineering</u> **Exam Preparation Strategies** **Learnings:** We discuss the challenges and critical success factors associated with deploying, managing, and evolving large scale ML models to production. We discuss how best to prepare for the examination	
Week 15 April 29th, 2023	**Study Break**	
Week 16th May 6th, 2023	**Final Examination**	

STATEMENT ON ACADEMIC CONDUCT AND SUPPORT SYSTEMS

Academic Conduct:

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

Students and Disability Accommodations:

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

Support Systems:

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

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

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

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

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

The Office of Student Accessibility Services (OSAS) - (213) 740-0776
osas.usc.edu
OSAS ensures equal access for students with disabilities through providing academic accommodations and auxiliary aids in accordance with federal laws and university policy.
USC Campus Support and Intervention - (213) 821-4710
campussupport.usc.edu
Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

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

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

USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call
dps.usc.edu, emergency.usc.edu
Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call
dps.usc.edu
Non-emergency assistance or information.

Office of the Ombuds - (213) 821-9556 (UPC) / (323-442-0382 (HSC)
ombuds.usc.edu
A safe and confidential place to share your USC-related issues with a University Ombuds who will work with you to explore options or paths to manage your concern.

*Occupational Therapy Faculty Practice - (323) 442-33*40 or otfp@med.usc.edu
chan.usc.edu/otfp
Confidential Lifestyle Redesign services for USC students to support health promoting habits and routines that enhance quality of life and academic performance.

Appendix II

PEER EVALUATION FORM

Please identify your team and team members for the _____ Project(s) that you worked on. Then rate all your team members, *including yourself,* based on the **contributions** of each team member for the selected assignment according to the criteria listed below. On a scale of 0 – 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/ 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:

CLASS PARTICIPATION STATEMENTS

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

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

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

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

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

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

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

To underscore the importance of participation, 10 percent of the course grade or 100 of 1000 points are allocated to class participation.

Class Participation—Behavioral Anchor Rating Scale:

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

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

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