BDA 541 OPTIMIZATION and SIMULATION

Syllabus

Course Description

The aim of the course is to help the students create optimization and simulation models, and analyze these models to provide insight regarding the assumptions, value drivers, and risks present in a business situation. The students will use the models to explore different ways to think about uncertainty, guide decision-making, and persuasively communicate analytical results.

Course Format

You will prepare for the class by examining the assignments formatted as readings and video tutorials, listed in this syllabus. You are responsible for going over these class materials on your own, prior to our class meetings. Any ancillary material will also be available on Blackboard prior to each class.

During class meetings, there will be very little lecturing (no more than 45 minutes). Instead, you will tackle different assignments individually or in groups under my supervision using MS Excel and R.

HW Assignments: Before every class, you will be required to complete an elementary HW assignment that will ensure that you have gone over the material. The HW assignment will be due 9PM every Sunday. Your answers to these assignments will help structure that week's classroom discussion.

Quizzes: Throughout the semester, there will be 3 quizzes, to check on your progress with the course material.

Exams: The final exam will be take home; it will be primarily based on problem solving with MS Excel and R.

Correspondence: If you want to get response to your e-mails, always include your name, your course name. Observe grammatical rules while composing your e-mails.

Grading

Final course grades will be based on:

Participation	15%
Quizzes	15%
HW Assignments	30%
Final Examination	40%

No late assignments will be accepted.

No make-up will be administered for the exams.

If you haven't accumulated 20% (of 60%) until the final exam, you will not be allowed to enter the final exam and automatically fail the class.

TENTATIVE SCHEDULE

WEEK 1	**Feb 5**
Topics to be Covered:	Introduction https://www.youtube.com/watch?v=suvvlxtl0-k

WEEK 2	**Feb 12**
Due:	B: Read sections 2.1 and 2.2 P: Coca Cola and Optimization V: Watch Week 2 Videos
Topics to be Covered:	Optimization: Linear Programming w/ Excel

WEEK 3	**Feb 19 (Quiz 1)**
Due:	B: Read sections 2.6 P: Procter & Gamble and Optimization R: R'ify one video
Topics to be Covered:	Optimization: Linear Programming w/ R

WEEK 4	**Feb 26**
Due:	B: Read sections 3.1 and 3.2 P: Anadolu Jet and Optimization V: Watch Week 4 Videos
Topics to be Covered:	Optimization: Integer Programming w/ Excel

WEEK 5	**Mar 5 (Quiz 2)**
Due:	P: Hotels and Optimization R: R'ify one video
Topics to be Covered:	Optimization: Integer Programming w/ R

WEEK 6	**Mar 12**
Due:	V: Watch Week 6 Videos
Topics to be Covered:	Simulation using Excel

WEEK 7	**Mar 19(Quiz 3)**
Due:	P: Pharmacies and Optimization & Simulation data-analytics.net/wp-content/uploads/2014/09/MonteCarloR1.html https://www.youtube.com/watch?v=xuUMz8exU8Q&t=297s https://www.youtube.com/watch?v=HOW5ul9WUhE Optional: https://goo.gl/2IZwdh R: R'ify one video
Topics to be Covered:	Simulation using R

WEEK OF Mar 26th	
FINAL EXAM	80% on Excel and R and 20% on how to merge O&S with BDA