



The University of Texas at Dallas
Jindal School of Management
Course Syllabus

Course Information

Course Number: BUAN/OPRE 6398.004
Course Title: Prescriptive Analytics
Term: Fall 2022
Class Meeting: Thursday, 4:00pm - 6:45pm, Room JSOM 2.714

Instructor Contact Information

Instructor: Rasoul Ramezani
Email: rasoul.ramezani@utdallas.edu, Please write the course and the section number on the subject line.
Office Hours: Tuesday & Wednesday, 4:00pm – 6:30pm
Office Location: JSOM 3.427

TA Contact Information

TA: Madhur Mehta
Email: madhur.mehta@utdallas.edu, Please write the course and the section number on the subject line.
Office Hours: Friday, 10:00am -12:00pm (conducted virtually on MS Teams)
Click here to meet with TA during office hours.

Prerequisites

- OPRE 6301/ SYSM 6303 (Statistics for Data Analysis) or
- OPRE 6359 (Advanced Statistics for Data Science)

Course Materials

- **Required Textbook:** Cliff Ragsdale (2017). *Spreadsheet modeling & decision analysis: A practical introduction to business analytics (8th ed.)*. Stamford, CT: Cengage Learning.
- **Recommended Textbook(s):** Frederick Hillier and Mark Hillier (2019). *Introduction to Management Science: A Modeling and Case Studies Approach with Spreadsheets (6th ed.)*. McGraw Hill.
- **Required Software:** Analytic Solver Platform
This is an Excel add-in and is run on Microsoft Excel 2007 or higher.

- For installation steps, see “*Analytic_Solver_v2021_Student_Installation_Guide.pdf*” uploaded on eLearning.
- For activation, in addition to the access code that must be purchased by students, students will need the **course code** and **book code**. These two codes will be posted on eLearning at the beginning of the semester.

Communication

- **eLearning:** Students should have access to the course eLearning webpage and should regularly check the email account used with eLearning as well as *announcements* posted on eLearning.

All the class resources are uploaded on eLearning.

- Classroom materials may not be reproduced or shared with those not in class or uploaded to other online environments except to implement an approved Office of Student AccessAbility accommodation. Failure to comply with these University requirements is a violation of the [Student Code of Conduct](#).

- **Microsoft Teams:** Recorded lectures for asynchronous access will be uploaded into the class team in MS Teams.

Teams => Select this course => Files => Recordings

- **Office hours Meetings:** We can meet regularly during office hours (see above). Note that I will also ask you questions during the meetings. So, you should be well-prepared before attending the meetings.

Course Description

“OPRE 6398 Prescriptive Analytics (3 semester hours): Introduction to decision analysis and optimization techniques. Topics include linear programming, decision analysis, integer programming, and other optimization models. Applications of these models to business problems will be emphasized.”

The course is about the science of better, i.e., applying analytical tools to make better decisions and improve the efficiency of a system. Topics to be covered include linear programming, integer programming, network models, time series forecasting, queuing theory, decision analysis, and project management. The primary goal is to acquaint students in business and relevant disciplines with useful concepts, theories, and solution methods in predictive analytics. Much emphasis will be placed on practical applications of the models discussed in class.

Student Learning Objectives/Outcomes

Students are expected to become familiar with the Excel-based software required for the class and develop skills in formulating problems, identifying solution methods, solving problems manually or by computer, and interpreting results. Upon successful completion of this course, students should be able to:

1. Use Analytic Solver Platform proficiently;
2. Formulate real-world problems as analytical or optimization models;
3. Identify appropriate program(s) in Analytic Solver Platform for solving models formulated;
4. Apply programs identified to solve problems manually or by computer; and
5. Interpret the results obtained and implement them in practice.

Topics and Tentative Academic and Assignments Calendar

Notes:

1. The below timelines are tentative and subject to change. Lectures may overlap from one class to the next.
2. Dates in the 2nd column refer to Mondays.

Week 1	Aug 22	Syllabus review/ quiz Introduction to Optimization and Linear Programming
Week 2	Aug 29	Modeling and Solving LP Problems in a Spreadsheet
Week 3	Sep 5	Sensitivity Analysis
Week 4	Sep 12	Sensitivity Analysis (con't)
Week 5	Exam 1 – Given on Thursday, Sep 22, during the class time	
Week 6	Sep 26	Network Modeling
Week 7	Oct 3	Integer Linear Programming
Week 8	Oct 10	Goal Programming and Multiple Objective Optimization
Week 9	Exam 2 – Given on Thursday, Oct 20, during the class time.	
Week 10	Oct 24	Regression Analysis
Week 11	Oct 31	Time Series Forecasting
Week 12	Nov 7	Time Series Forecasting (con't) Queuing Theory
Week 13	Nov 14	Queuing Theory (con't) Decision Analysis
Week 14	Nov 21	Fall Break – No Class
Week 15	Nov 28	Decision Analysis (con't)
Week 16	Exam 3 – Given on Thursday, Dec 8, during the class time.	

Grading Policy

Syllabus Quiz	1%
Exam 1	21%
Exam 2	23%
Exam 3	25%
Assignments	30%

Grading Scale

≥ 91	A	83-86	B	70-75	C
89-91	A-	79-83	B-	< 70	F
86-89	B+	75-79	C+		

Course Policies

Homework Assignments

- 10 homework assignment will be given.
- Students are allowed to work in groups of maximum **FOUR** on homework assignments.
- Only one submission per group is required. Solutions must be submitted into eLearning.
- Group's members name must be clearly typed on the solution's cover page. The missing name would not receive any credits.
- All **typed** solutions (converted to a pdf) along with the Excel files used for HWs must be submitted via eLearning. Hand-written submissions will not be graded.
- For questions answered in Solver, the excel file **Must** be uploaded. Missing an excel file results in an immediate 50 points deduction.
- No late submissions will be accepted, no matter what. Don't wait until the last minute!
- No solution will be accepted via emails.
- Please do not email me asking if your answer to a question is correct.

Exams

- Three noncumulative exams will be given.
- Exams will be given online on eLearning in class.
- Exams will cover material from the textbook, instructor's lectures, handouts, and homework.
- If you miss an exam without a properly documented excuse conforming to university policy, your grade will be zero for the missed exam(s).
- Make-up exams are offered only for legitimate and documented reasons, such as documented illness or family emergencies.
- Under no circumstances will a make-up exam be offered because a student is going on a trip, going to his/her sister's wedding, or conducting other personal business.
- Please consider the exam dates before booking any flight tickets.

Extra Credits

No extra assignments, make-up exams, etc. offered for extra credits.

Final Note: *Claims against grading can only be made for one week following the return of the exam or assignment. Periods when the university is not holding classes will not count towards this week.*

Class Attendance

Regular and punctual class attendance is expected.

Class Participation

Regular class participation is expected regardless of course modality. Students who fail to participate in class regularly are inviting scholastic difficulty. Class participation is documented by faculty. Successful participation is defined as consistently adhering to university requirements, as presented in this syllabus. Failure to comply with these University requirements is a violation of the [Student Code of Conduct](#).

Classroom Citizenship:

- Coming on time and leaving at the end. No talking please. No cell phones in class, please.

- Any inappropriate and disruptive behavior will be referred to the dean. See Section 49.07: Faculty Role in Removal for Misconduct at <https://policy.utdallas.edu/utdsp5003>

University Policies

For information on a host of UTD course policies, see <http://go.utdallas.edu/syllabus-policies>. Several, but not all, of these policies are addressed in more detail below.

Nondiscrimination

UTD's Nondiscrimination Policy states that, "The University of Texas at Dallas is committed to providing an educational, living and working environment that is welcoming, respectful and inclusive of all members of the university community. An environment that is free of discrimination and harassment allows members of the university community to excel in their academic and professional careers. To that end, to the extent provided by applicable federal and state law, the University prohibits unlawful discrimination against a person because of their race, color, religion, sex (including pregnancy), national origin, age, disability, genetic information, or veteran status. The University's commitment to equal opportunity extends its nondiscrimination protections to include sexual orientation, gender expression and gender identity.

"Retaliation against a person who files a claim of discrimination, participates in a discrimination investigation or proceeding, or otherwise opposes an unlawful employment practice is prohibited.

"A person who believes that he or she has been subjected to discrimination or harassment in violation of this policy and seeks to take action may use either the informal resolution process or the formal complaint process, or both. The informal resolution and formal complaint process described in this policy are not mutually exclusive and neither is required as a pre-condition for choosing the other; however, they cannot both be used at the same time."

For the full policy statement, see <https://policy.utdallas.edu/utdbp3090>.

AccessAbility Services

It is the policy and practice of The University of Texas at Dallas to make reasonable disability-related accommodations and/or services for students with documented disabilities. However, written notification from the Office of Student AccessAbility (OSA) is required (see <http://www.utdallas.edu/studentaccess>). If you are eligible to receive disability-related accommodations and/or services and to ensure accommodations will be in place when the academic semester begins, students are encouraged to submit documentation four to six weeks in advance. Students who have questions about receiving accommodations, or those who have, or think they may have, a disability (mobility, sensory, health, psychological, learning, etc.) are invited to contact the Office of Student AccessAbility for a confidential discussion.

The Office of Student AccessAbility provides:

- a) Academic accommodations for eligible students with a documented permanent physical, mental or sensory disability
- b) Facilitation of non-academic and environmental accommodations and services
- c) Resources and referral information, and advocacy support as necessary and appropriate.

OSA is located in the Student Services Building, suite 3.200. They can be reached by phone at 972-883-2098, or by email at studentaccess@utdallas.edu.

Academic Integrity

Students are expected to adhere to UTD's Student Code of Conduct:

Because the value of an academic degree depends on the absolute integrity and character of the student the university expects all students to maintain a high level of responsibility with respect to their behavior. As a member of the university community, it is imperative that a student maintain a high standard of individual responsibility and civility.

The dean may initiate disciplinary proceedings under Subchapter D against a student accused of a violation of the Code of Conduct upon complaint by a faculty member, a student or other source.

Academic dishonesty could result in disciplinary action from the university. Penalties could include receiving a grade of “F” for this course, expulsion or even the revocation of a degree. With respect to academic dishonesty, see Section 49.10 from the Student Code of Conduct (<http://policy.utdallas.edu/utdsp5003>), which includes:

- a) **Plagiarism:** The adoption or reproduction of ideas, words, statements, images or works of another person as one's own without proper acknowledgement.
- b) **Cheating:** Using or attempting to use unauthorized materials, information, or study aids in any academic exercise. Academic exercise includes all forms of work submitted for credit or hours.
- c) **Fabrication:** Falsification or creation of any information, data or citation in an academic exercise.
- d) **Collaboration and/or Collusion:** Seeking or providing aid to another student in completion of any assignment submitted for academic credit without permission from the faculty member.

Section C. Student Standards of Conduct

<https://policy.utdallas.edu/utdsp5003>

Cheating: Includes but is not limited to the use, attempted use, or providing of unauthorized materials, information, or study aids in any academic exercise; the use of sources beyond those authorized by the instructor in completing any academic exercise. Any type of discussion about questions and answers on assignments/tests, including those held in social media platforms and other electronic chat groups, may be considered cheating. Failure to submit a test within the timeframe allocated by the professor, whether in the classroom or in the University testing center, may be considered cheating. Academic exercise includes all forms of work submitted for credit or hours.

Comet Creed

This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:

“As a Comet, I pledge honesty, integrity, and service in all that I do.”

Academic Support Resources

The information contained in the following link lists the University’s academic support resources for all students.

Please go to [Academic Support Resources](#) webpage for these policies.

UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University’s policies and procedures segment of the course syllabus.

Please go to [UT Dallas Syllabus Policies](#) webpage for these policies.

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.