



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: Spring 2022
Class Meeting: Tuesdays, 4pm-6:45pm, Room JSOM 12.214
(The first three sessions are conducted virtually in MS Teams.)

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: Tues from 1pm-3pm (in person), Mon/Wed from 11am-1pm (Virtually)
Office Location: JSOM 3.427

TA Contact Information

TA: Meghana Pendyala
Email: meghana.pendyala@utdallas.edu, Please write the course and the section number on the subject line.
Office Hours: Mon from 10 am-12 pm, conducted virtually in MS Teams.

Classroom Safety and COVID-19

To help preserve the University's in-person learning environment, UT Dallas recommends the following:

- Adhere to the University's [CDC Updated Guidelines](#) issued on July 30, 2021. All Comets are strongly encouraged to wear face coverings indoors regardless of vaccination status.

Accommodations for Students Who Must Isolate or Quarantine Due to COVID-19

To keep the UT Dallas community as safe as possible, the University requires students who test positive for COVID-19 or who are close contacts as determined by the campus contact tracing program to isolate or quarantine as applicable. Faculty will be notified by the Dean of Students' Office if a student in their class has been required to isolate (positive case) or quarantine (exposed).

Recorded lectures will be made available for those students during the period that they must isolate or quarantine via MS Teams.

Verifying COVID-19 Isolations or Quarantines

Students need to self-report COVID-19 positive results or exposures via an online form so that university campus tracers can verify, record, and take necessary campus precautions. When faculty are notified by students rather than by the Dean of Students' Office that the students are isolating or

quarantining, the faculty should remind students to self-report via the form; students should not attend class until cleared by campus tracers.

Vaccinations are widely available, free and not billed to health insurance. The vaccine will help protect against the transmission of the virus to others and reduce serious symptoms in those who are vaccinated. You are encouraged to [get a COVID-19 vaccine](#) and register your vaccination status through the [voluntary vaccine report form](#). If you have received your COVID-19 booster, you may register your status through the [voluntary COVID-19 booster reporting form](#).

Proactive Community Testing remains an important part of the university's efforts to protect our community. Tests are fast and free. Please check the [Comets United](#) webpage for additional information.

[Student Safety](#) remains an important part of the UT Dallas' efforts to protect our community. All students will adhere to the Comet Commitment. Unvaccinated Comets will be expected to complete the mandatory [Required Daily Health Screening](#). Those students who do not comply will be referred to the Office of Community Standards and Conduct for disciplinary action under the [Student Code of Conduct – UTSP5003](#). All students are encouraged to read the [Recommendations for Students Returning to Campus](#) issued on August 2, 2021.

Visit [Comets United webpage](#) to obtain the latest information on the University's guidance and resources for campus health and safety.

Class Attendance

Regular and punctual class attendance is expected. Attendance is taken.

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](#).

Class Recordings

The instructor may record meetings of this course. Recordings will be available to students placed in the online category by the registration office. Recordings may not be published, reproduced, or shared with those not in the class, or uploaded to other online environments except to implement an approved Office of Student AccessAbility accommodation. Unless the Office of Student AccessAbility has approved the student to record the instruction, students are expressly prohibited from recording any part of this course. Failure to comply with these University requirements is a violation of the [Student Code of Conduct](#).

If the instructor or a UTD school/department/office plans any other uses for the recordings, consent of the students identifiable in the recordings is required prior to such use unless an exception is allowed by law.

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

- **Discussion Board:** Questions that are not personal should be posted to the course Discussion Board on eLearning. The instructor will receive these questions and comments, as well as other class members. Questions of a personal nature (or not relevant to others in the class) should be sent directly to the instructor and not posted to the Discussion Board.

Students are encouraged to respond to questions from fellow students. Answering questions helps both the student asking the question and the student working on the answer. In addition, since the conversation is open to the entire class, others can also learn from the exchange. To subscribe to the discussion board:

Log into e-Learning => Course List => Select the course => from the left Menu, select Discussion Board => Click “Questions/Comments” forum => Subscribe

Prerequisites

OPRE 6301 Quantitative Introduction to Risk and Uncertainty in Business

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	Jan 17	Syllabus review/ quiz Introduction to Optimization and Linear Programming
Week 2	Jan 24	Modeling and Solving LP Problems in a Spreadsheet
Week 3	Jan 31	Sensitivity Analysis
Week 4	Feb 7	Sensitivity Analysis (con't)
Week 5	Feb 14	Exam 1 – Given in class during the class time on Feb 15 .
Week 6	Feb 21	Network Modeling
Week 7	Feb 28	Integer Linear Programming
Week 8	Mar 7	Goal Programming and Multiple Objective Optimization
Week 9	Mar 14	Spring break No class
Week 10	Mar 21	Exam 1 – Given in class during the class time on Mar 22 .
Week 11	Mar 28	Regression Analysis
Week 12	Apr 4	Time Series Forecasting
Week 13	Apr 11	Time Series Forecasting (con't) Queuing Theory
Week 14	Apr 18	Decision Analysis

Week 15	Apr 25	Decision Analysis (con't)
Week 16	May 2	Exam 3 – Given in class during the class time on May 3 .

Grading Policy

Syllabus Quiz	1%
Exam 1	20%
Exam 2	22%
Exam 3	27%
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

- 9 or 10 homework assignment will be given.
- Students are allowed to work in groups of maximum **three** 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. Otherwise, the missing name would not receive any credits.
- All **typed** solutions along with the Excel files used for HWs must be submitted via eLearning. Hand-written submissions will not be graded.
- Solutions must be converted to a pdf before submission. Otherwise, points will be deducted.
- For questions answered in Solver, the excel file **Must** be uploaded. Missing excel files results in a loss of 50 points.
- 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.
- General questions regarding assignments must be posted on the course Discussion Board.

Exams

- Three noncumulative exams will be given.
- Exams will be given online in eLearning.
- 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. is offered for extra credits no matter what.

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.*

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.