

**FINA 7397 Decision Analysis**  
**Summer / Fall 2021**

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**Course Objectives:**

The key objective of this course is to introduce the “Decision Analysis” (DA for short) process, and apply it to a series of Case Studies, be they Financial, Medical, Economics or Litigation/Legal.

Monte-Carlo approach will be introduced, and demonstrated through a case study.

Several guest lecturers, either renowned DA experts in the Consulting or Medical field will show the students how DA is used in real life.

It is expected that, at the end of this course, students will be able to use DA to help them make better decisions, either in business or in their personal life.

**Instructor:**

Dom Berta is currently Adjunct Professor at the Bauer School of Business, teaching the “Upstream Economics” class. He has been working in the oil and gas industry for 39 years in executive, managerial and professional positions, whether in finance, business development or engineering.

**Recommended Books:**

“Project Economics and Decision Analysis, Volume 1, 2nd Edition,” M. A. Mian (PennWell Publishing, 2011)

“Introduction to Decision Analysis”, David Skinner - ISBN-13: 978-0964793866 / ISBN-10: 0964793865

**Course Materials** The course material will consist of: (1) lecture notes and other reading material relating to the analytical frameworks used in the course and case studies of “real-life” decision-making situations that invite students to bring together their knowledge and apply it to situations that challenge top-management.

The lecture notes will be posted on Blackboard.

Basic knowledge of Excel is a must.

Basic knowledge of PowerPoint will be helpful.

Students must be using a laptop for this class, as experience has shown that the screens of smartphones are too small.

### **Class Content**

Class time will be divided between lectures on the analytic material and discussion of cases that highlight the practical management issues raised by the theoretical frameworks. The cases are carefully chosen to do much more than simply illustrating the concepts covered in the lectures. The cases will often point to ambiguities in the concepts or invite attention to subtle issues that do not usually come through in the study of the textbook. The assignment of cases and the focus questions to help in the preparation or analysis of these cases are clearly spelt out in the syllabus below, and the case discussions are an integral part of the course. Class attendance is very important and strongly encouraged.

### **Course Requirements:**

Students will be required to present both written work and oral analysis of the cases. The written work will involve homework exercises and case reports. The case report assignments and their due dates are clearly spelt out below. Oral analysis will be presented in case discussions. I expect students to have read the cases and prepared the assignment questions prior to the class session. Inadequate preparation not only means losing grading points but also lowers the entire class standard.

### **Grading:**

The grading weights of the course-work are as follows:

1. Quizzes - 10%
2. Homework assignments - 10%
3. Final - 50%
4. Class contribution/participation - 30%

Class participation reflects the standard of contribution to class discussions, especially in the cases. In terms of grading criteria for case discussions, I will look for whether the student (1) has thoroughly prepared the case, (2) is a good listener, i.e., can link his or her arguments to the comments of others, and (3) is willing to be “creative” in offering new ideas. Please see Appendix B.

Please note that I may have to vary the grading coefficients in order to accommodate for the current COVID situation.

### **Class Participation:**

I will use participation during our weekly sessions as a potential curve. Please note that I will frequently call on you for your input or opinions, so be prepared. Please review Appendix A for details.

### **Excused Absence Policy:**

Regular class attendance, participation, and engagement in coursework are important contributors to student success. Absences may be excused as provided in the University of Houston Undergraduate Excused Absence Policy and Graduate Excused Absence Policy for reasons including: medical illness of student or close relative, death of a close family member, legal or government proceeding that a student is obligated to attend, recognized professional and educational activities where the student is presenting, and University-sponsored activity or athletic competition. Additional policies address absences related to military service, religious holy days, pregnancy and related conditions, and disability.

### **Recording of Class:**

Students may not record all or part of class, livestream all or part of class, or make/distribute screen captures, without advanced written consent of the instructor. If you have or think you may have a disability such that you need to record class-related activities, please contact the Center for Students with Disabilities. If you have an accommodation to record class-related activities, those recordings may not be shared with any other student, whether in this course or not, or with any other person or on any other platform. Classes may be recorded by the instructor. Students may use instructor's recordings for their own studying and notetaking. Instructor's recordings are not authorized to be shared with anyone without the prior written approval of the instructor. Failure to comply with requirements regarding recordings will result in a disciplinary referral to the Dean of Students Office and may result in disciplinary action.

### **Syllabus Changes:**

Due to the changing nature of the COVID-19 pandemic, please note that the instructor may need to make modifications to the course syllabus and may do so at any time. Notice of such changes will be announced as quickly as possible.

### **Resources for Online Learning:**

The University of Houston is committed to student success and provides information to optimize the online learning experience through our Power-On website. Please visit this website for a comprehensive set of resources, tools, and tips including: obtaining access

to the internet, AccessUH, and Blackboard; requesting a laptop through the Laptop Loaner Program; using your smartphone as a webcam; and downloading Microsoft Office 365 at no cost. For questions or assistance contact UHonline@uh.edu.

### **UH Email:**

Email communications related to this course will be sent to your UH Exchange email account that each University of Houston student receives. The Exchange mail server can be accessed via Outlook, which provides a single location for organizing and managing day-to-day information, from email and calendars to contacts and task lists. Exchange email accounts can be accessed by logging into Office 365 with your CougarNet credentials or through AccessUH. They can also be configured on IOS and Android mobile devices. Additional assistance can be found at the Get Help page.

### **Webcams:**

Access to a webcam is required for students participating remotely in this course. Webcams must be turned on during all live course meetings to enable discussion.

### **Honor Code Statement:**

Students may be asked to sign an honor code statement as part of their submission of any graded work including but not limited to projects, quizzes, and exams: "I understand and agree to abide by the provisions in the Houston Graduate Academic Honesty Policy. I understand that academic honesty is taken very seriously, and, in the cases of violations, penalties may include suspension or expulsion from the University of Houston."

### **Hyflex Online Courses:**

This course is being offered in an Hyflex format. Class meetings will take place according to the class schedule. Some students will be physically in-class, whereas others will be online. The instructor may have to alter some of the class format, schedule, contents and grading percentages due to the application of this novel format.

### **Helpful Information:**

COVID-19 Updates: <https://uh.edu/covid-19/>

Coogs Care: <https://www.uh.edu/dsaes/coogscare/>

Laptop Checkout Requests: <https://www.uh.edu/infotech/about/planning/off-campus/index.php#do-you-need-a-laptop>

Health FAQs: <https://uh.edu/covid-19/faq/health-wellness-prevention-faqs/>

Student Health Center: <https://uh.edu/class/english/lcc/current-students/student-health-center/index.php>

### **Professor Evaluation:**

The C.T. Bauer College of Business has a policy for its instructors to be evaluated by students to provide feedback on how their teaching performance can be improved. I encourage you to participate in the evaluation process. I am available throughout the semester to receive any informal input. I rely on your input to improve the class each time I teach it.

**Disability-Based Accommodations:**

The C.T. Bauer College of Business would like to help students who have disabilities achieve their highest potential. To this end, students must register with the Center for Students with Disabilities (CSD) (Telephone 713-743-5400) It is the mission of the Disability Resource Center (DRC) to be committed to providing access to the educational environment for students. Students who may need accommodations should contact the DRC to discuss their needs and begin the registration process.

## Appendix A:

### Class Schedule, Topics and Assignments

8/24/2020			
	<b>FINA xxxx - Bauer School of Business, University of Houston</b> <b>Summer_Fall 2021 - Dom Berta</b>		
	<i>Note: Due to the impact of the CoVid on this Hyflex class environment, I reserve the right to adapt this schedule</i>		
Session #1	Date	Class Contents	Assignment for next class
#1	1	Course introduction	Homework #1 for next class: economics
		Decision Analysis ( <i>DA in short</i> ): what, why, how?	
		A brief review of Economics fundamentals	
		In-class exercise	
#2	2	Work Homework #1	
		Short quiz over previous session material	
		Issue Raising: in-class Case Study#1 and #2	
		Issue Sorting: in-class Case Study#1 and #2	
		Work Case Studies in break-out rooms	
#3	3	Continue session #2	
		Short quiz over previous sessions material	
		Discuss/review Case Studies #1 and #2	
#4	4	Review concepts from previous sessions	Homework #2 for next class: Develop the Influence Diagram for Case Study #2 (Manufacturing)
		Influence Diagram	
		In-class Case Study #3 and #4 in beak-out rooms	
		Discuss In-class Case Study #3 and #4	
#5	5	Review concepts from previous sessions Rework Case Studies if necessary	Homework #3 for next class: Develop the Risk Timeline for Case Study #4 (Legal)
		Guest Lecturer (medical)	
		Introduce "Risk Timeline"	
		In-class exercise in break-out rooms:	

		Build-out the Risked Timeline for Case Studies #2 and #3	
#6	6	Review previous concepts Discuss homework #3	Homework #4 for next class: Assess P10/P50/P90 for a project of interest
		Probability Assessments / Risk Aversion/tolerance	
		In-class exercise + discussion	
#7	7	Review previous concepts Discuss homework #4	Homework #5 for next class: Carry-out a Tornado Diagram
		Tornado Diagram	
		In-class exercise	
#8	8	Review previous concepts + review the homework	
		Decision Tre	
		In-class exercise	
#9	9	Review previous concepts Discuss homework #5	Homework #6 for next class: Carry-out a Decision Tree
		Decision Tree (ctd)	
#10	10	Review homework #6	Homework #7 for next class: Carry-out a Monte-Carlo analysis
		Monte-Carlo analysis	
		Industry Presenter - (consulting)	
#11	11	Review homework #7	Homework #8 for next class: Carry out a VOI analysis
		Decision Tree ( ctd) Value of Information	
		In-class exercise	
#12	12	Review homework #8	
		Value of Information (ctd)	
		Industry presenter: (consulting)	
#13	13	Strategy tables	

		In-class exercise	
		Decision Analysis team rules & processes	
#14	14	Finals	