

UNIVERSITY of  
**HOUSTON**

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C. T. BAUER COLLEGE of BUSINESS

**FINA 4372-7372 , MH xxx**  
**Upstream Oil&Gas Project Economics**  
**Fall 2024**

Instructor: Dom Berta  
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**Course Objectives:**

The objectives of the course are to understand the business decisions involved with the exploration and production of oil and gas, including dealing with high levels of risk and uncertainty, to be able to prepare and analyze cash flow forecasts for oil and gas production operations.

Additionally, the course will talk about Reserves, Portfolio Management, review different project contracts, and propose a first introduction to Decision Analysis, helped with several Case Studies

Guest speakers are managers from O&G upstream companies

**Instructor:**

Dom Berta has been working in the oil and gas industry for 39 years in executive, managerial and professional positions, be they finance, business development and engineering. He teaches “Corporate Strategy and Project Decisions”, “Project Planning & Financing”, “Corporate Planning and Strategy” and this class.

He also teaches E-MBA classes “Managerial Finance” and “Managerial Analysis” as well as “Finance to non-Finance managers” as part of the E-education program at Bauer.

**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 in 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 Canvas.

## Testimonials

Upstream Economics with Professor Berta is a fun class with a great professor. I didn't realize how much I learned until now, as I am starting my last internship of college in an oil and gas investment bank. I feel much more confident knowing that I've done financial models specifically related to upstream, unlike most of the other interns at my bank. I understand what Working Interest is, what fracking actually means, and I've even heard of (and done) a safety moment! Professor Berta is a very supportive professor, and in a weird way, he saved either my life, or he saved me a lot of money through the safety moment presentations. I had an accidental kitchen/grease fire in a rental unit that had no smoke alarms, sprinklers, nor a fire extinguisher, but I knew how to put it out because I'd done my own safety moment on fire safety. Had I not done that safety moment, I might have put water on the grease fire, which would have caused it to explode. We also did a simulation and class competition with an oil and gas investment project with an external provider that was really fun. Thank you Professor Berta for teaching me so much in such a fun way! *(from Sarah Grace, Fall 2023)*

I elected to participate in the MSF program to gain tangible industry knowledge in the field of Finance while also developing a material competitive advantage ahead of similarly situated peers. I can confidently assert that courses like Professor Berta's Upstream Economics class made that goal not only possible - but simultaneously enhanced my attention to detail, critical thinking skills, decision making. His course was effectively able to bring everything together for someone who was just beginning his career in the Oil and Gas industry.

Professor Berta has invaluable knowledge in the sector and never shied away from diving deep on any given subject or question posed. The course was structured around well economics under different return frameworks/ commodity price cycles, risk mitigation in the face of highly uncertain outcomes, and analyzing financial statements to ultimately forecast well productivity. Additionally, the course also enabled me to work together collaboratively with my fellow classmates on an end-of semester seismic project that helped illustrate subsurface risk management and the various dynamics/biases that go into well exploration. Although I found this course to be quite difficult at the time, I would say the exercises that Professor Berta utilizes within his course should be a pre-requisite for any young professional looking to learn more about Oil and Gas exploration. I am quite grateful for Professor Berta's time and fortunate to have participated in Upstream Economics. *(from Payton / Fall 2023)*

Taking the Upstream Economics class was an incredibly enriching experience. The course content was both comprehensive and engaging, covering essential topics that provided a deep understanding of economic principles from an upstream perspective. Professor Dom's expertise

and passion for the subject were evident in every lecture, making complex concepts accessible and interesting.

One of the highlights of the class was the practical application of theories through the Oil Sim software. It offered hands-on experience with the processes and operations involved in oil exploration & production and helped me to practice decision making in a controlled, risk-free environment. The interactive discussions and group projects fostered a collaborative learning environment, allowing me to gain diverse perspectives and insights from my peers.

I highly recommend this course to anyone looking to deepen their understanding of economics and its impact on upstream O&G activities. *(from Rajvi / Fall 2023)*

*Upstream Economics was one of the most specialized classes I've taken at the University of Houston. Because of my personal interest and career prospects within the energy realm, I took the class, and found the material that I learned to be amazing! We conceptually learned background information, went through case studies of events, and even did a virtual simulation of what the entire process would be like in real life. If you have a deep passion for oil and gas and specifically upstream operations I would suggest the class (Pranjal . Fall 2023)*

The class “Upstream Economics” was one of my favorite courses I took in my master’s program. The curriculum was challenging yet rewarding and Professor Berta’s expertise in the subject was insightful. This class also offered me one of the most unique exercises I had ever done in my academic career with the oil simulation. It was informative, fun, and competitive for the class and I thoroughly enjoyed it. I highly recommend anyone interested in the energy industry to explore this class! *(Christian / Fall 2022)*

I took Professor Berta's "Upstream Economics" course during my master’s program at the University of Houston. I felt the course gave me a very practical understanding of the economics of the upstream sector. The content has been immediately applicable, as these economics drive the decision-making in the companies that I consult for in my career. I would recommend anyone that has an interest in upstream oil & gas to consider Professor Berta's course to deepen their understanding of the sector. *(Anthony / Fall 2022)*

### **Class Schedule, Topics and Assignments**

4/6/2024	
	<p><b>FINA7A97 - “Upstream Oil &amp; Gas Project Economics”</b>  <b>Bauer School of Business, University of Houston</b>  <b>Fall 2024 - Dom Berta</b></p>
	<i>Note: I reserve the right to adapt this schedule, due to unplanned events</i>

Session	Date	Class Contents	Assignment for next class
#1	Monday Aug 19 <sup>th</sup>	Course introduction Brief Overview of the Oil& Gas Upstream industry	
#2	Monday Aug 26 <sup>th</sup>	<b>Safety Moment</b> Quiz#1 over session #1 Project Economics CashFlow analysis ( <i>exercise in class</i> )	<ul style="list-style-type: none"> <li>• HW #1</li> </ul>
#3	Monday Sep 9 <sup>th</sup>	<b>Safety Moment</b> Quiz #2 Work HW #1 Discounted Cashflow ( <i>exercise in class</i> ) Project Economics: measures of merit Reserves Planning Portfolio Analysis	<ul style="list-style-type: none"> <li>• HW #2</li> </ul>
#4	Monday Sep 16 <sup>th</sup>	<b>Safety Moment</b> Quiz #3 Work HW #2 Portfolio Analysis (ctd) Type of contracts Introduction to Case Study "IW Oil & Gas"	<ul style="list-style-type: none"> <li>• HW #3</li> <li>• Analysis of case study "IW Oil &amp; Gas"</li> </ul>
#5	Monday Sep 23 <sup>rd</sup>	<b>Safety Moment</b> Quiz #4 Review HW #3 Work case study "IW Oil & Gas"	<ul style="list-style-type: none"> <li>• HW #4</li> </ul>
#6	Monday Sep 30 <sup>th</sup>	<b>Safety Moment</b> <u>Guest Speaker</u> : Mike Morgan, Capital Project Planning manager at CoP ( <i>retired</i> )  <u>Oil Sim</u> : ( <i>Paula</i> ) Nominate blocks to be included in the licensing round, using geographic maps, and magnetic and gravimetric survey data.	HW #5: buy the Absheron case, read thoroughly the text
#7	Monday Oct 7 <sup>th</sup>	<b>Safety Moment</b> <u>Oil Sim</u> : ( <i>Paula</i> ) Identify the most promising of the blocks offered for lease and prepare bids, using common risk segment maps and 2D seismic surveys. Initiate negotiation of farm-ins and farm-outs with other teams, after obtaining 3D seismic surveys	HW #5: Absheron case - analyze the spreadsheet to generate money flow diagrams between SOCAR, BP and the government

#8	Monday Oct 14 <sup>th</sup>	<b>Safety Moment</b> <u>Oil Sim</u> : (Paula) Complete participation negotiations Wildcat and appraisal drilling Review progress and record financial results	HW #5: Absheron case - analyze the spreadsheet to generate money flow diagrams between SOCAR, BP and the government
#9	Monday Oct 21 <sup>st</sup>	<b>Safety Moment</b> <u>Oil Sim</u> : (Paula) Project Planning and Execution	HW #5: Absheron case - analyze the spreadsheet to generate money flow diagrams between SOCAR, BP and the government
#10	Monday Oct 28 <sup>th</sup>	<b>Safety Moment</b> Quiz #5 PSC contract Analyze the Absheron contract (HW #5)	Read the "Lucky Oil" case study
#11	Monday Nov 4 <sup>th</sup>	<b>Safety Moment</b> Quiz #6 Introduction to "Decision Analysis" ( <i>Framing the problem</i> )	
#12	Monday Nov 11 <sup>th</sup>	<b>Safety Moment</b> Decision Analysis ( <i>Influence Diagram &amp; Skeleton decision Tree</i> ) Quiz #7 & Quiz "Ambitious Oil Company" Work the case study « Lucky Oil"	
#13	Monday Dec 18 <sup>th</sup>	<b>Safety Moment</b> Strategy by Sam Vardy and Ray Spence from "Decision Frameworks" Quiz #8 Decision Analysis: ( <i>Decision Tree &amp; Cumulative Probability</i> )	
#14	Monday Nov 25 <sup>th</sup>	Finals	

## **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 text-book. 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 tentatively as under:

1. Quizzes - 10%
2. Homework assignments (*excluding case studies reports*)- 15%
3. Case Studies - 15%
4. Final - 50%
5. Class contribution/participation - 10%

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 reserve the right to modify this grade weighting, as situation may evolve.

## **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 through both email and Blackboard posting.

**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 Exchange email account which 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 Access UH. 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 our discussions. Additionally, the instructor asks that students on Webcam, or in class prevent from eating.

### **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:**

For Hyflex courses, class meetings will take place according to the class schedule. Some students may 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.

### **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 course 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.



## Appendix B

### Live Session Expectations

#### **High/Above-Average Contributions Assessment Criteria:**

- Contributions reflect thorough or exceptional preparation.
- Ideas offered are usually or always substantive, provide one or more significant insights and provide above average or highly productive direction for discussion among classmates.
- Challenges to the ideas of others, including authors of assigned readings, are well-substantiated and often or always presented persuasively.
- If this person were not present in our class sessions, the quality of discussion would be diminished markedly.

#### **Medium/Average Contributions Assessment Criteria:**

- Contributions reflect satisfactory preparation.
- Ideas offered are sometimes substantive, provide generally useful insights but seldom offer new and substantive direction for discussion among fellow classmates.
- Challenges to the ideas of others, including authors of assigned readings, are sometimes well-substantiated and sometimes presented persuasively.
- If this person were not present in our class sessions, the quality of discussion would be diminished.

#### **Low/Below-Ave Contributions Assessment Criteria:**

- Contributions reflect inadequate preparation.
- Ideas offered are seldom substantive, provide few, if any, insights and, at times, take the classroom discussion in an unproductive, insightful direction.
- Integrative comments and effective challenges are rare or absent.
- If this person were not present in our class sessions, the quality of discussion would not be changed or might improve.

## Required Language for All Courses

### Mental Health and Wellness Resources

The University of Houston has a number of resources to support students' mental health and overall wellness, including [CoogsCARE](#) and the [UH Go App](#). UH [Counseling and Psychological Services \(CAPS\)](#) offers 24/7 mental health support for all students, addressing various concerns like stress, college adjustment and sadness. CAPS provides individual and couples counseling, group therapy, workshops and connections to other support services on and off-campus. For assistance visit [uh.edu/caps](http://uh.edu/caps), call 713-743-5454, or visit a [Let's Talk](#) location in-person or virtually. [Let's Talk](#) are daily, informal confidential consultations with CAPS therapists where no appointment or paperwork is needed.

The [Student Health Center](#) offers a Psychiatry Clinic for enrolled UH students. Call 713-743-5149 during clinic hours, Monday through Friday 8 a.m. - 4:30 p.m. to schedule an appointment.

The [A.D. Bruce Religion Center](#) offers spiritual support and a variety of programs centered on well-being.

### **Need Support Now?**

**If you or someone you know is struggling or in crisis, help is available. Call CAPS crisis support 24/7 at 713-743-5454, or the National Suicide and Crisis Lifeline: call or text [988](tel:988), or chat [988lifeline.org](https://988lifeline.org).**

### Academic Honesty Policy

High ethical standards are critical to the integrity of any institution, and bear directly on the ultimate value of conferred degrees. All UH community members are expected to contribute to an atmosphere of the highest possible ethical standards. Maintaining such an atmosphere requires that any instances of academic dishonesty be recognized and addressed. The [UH Academic Honesty Policy](#) is designed to handle those instances with fairness to all parties involved: the students, the instructors, and the University itself. All students and faculty of the University of Houston are responsible for being familiar with this policy.

### Title IX/Sexual Misconduct

Per the UHS Sexual Misconduct Policy, your instructor is a “responsible employee” for reporting purposes under Title IX regulations and state law and must report incidents of sexual misconduct (sexual harassment, non-consensual sexual contact, sexual assault, sexual exploitation, sexual intimidation, intimate partner violence, or stalking) about which they become aware to the Title IX office. Please know there are places on campus where you can make a report in confidence. You can find more information about resources on the Title IX website at <https://uh.edu/equal-opportunity/title-ix-sexual-misconduct/resources/>.

### Reasonable Academic Adjustments/Auxiliary Aids

The University of Houston is committed to providing an academic environment and educational programs that are accessible for its students. Any student with a disability who is experiencing barriers to learning, assessment or participation is encouraged to contact the Justin Dart, Jr. Student Accessibility Center (Dart Center) to learn more about academic accommodations and support that may be available to them. Students seeking academic accommodations will need to register with the Dart Center as soon as possible to ensure timely implementation of approved accommodations. Please contact the Dart Center by visiting the website: <https://uh.edu/accessibility/> calling (713) 743-5400, or emailing [jdcenter@Central.UH.EDU](mailto:jdcenter@Central.UH.EDU).

### 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. Under these policies, students with excused absences will be provided with an opportunity to make up any quiz, exam or other work that contributes to the course grade or a satisfactory alternative. Please read the full policy for details regarding reasons for excused absences, the approval process, and extended absences. 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 [Justin Dart, Jr. Student Accessibility Center](#). 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.

## **Recommended Language and Guidance**

### 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, Blackboard, and Canvas; using your smartphone as a webcam; and downloading Microsoft Office 365 at no cost. For questions or assistance contact [UHOnline@uh.edu](mailto:UHOnline@uh.edu).

### UH Email

Please check and use your CougarNet email for communications related to this course. Faculty use the CougarNet email to respond to course-related inquiries such as grade queries or progress reports for reasons of FERPA. To access your CougarNet email, [login](#) to your Microsoft 365 account with your CougarNet credentials. Visit [University Information Technology \(UIT\)](#) for instructions on how to connect your CougarNet e-mail on a mobile device.

### Webcams

Access to a webcam is required for students participating remotely in this course. Webcams must be turned on (*state when webcams are required to be on and the academic basis for requiring them to be on*). (Example: *Webcams must be turned on during exams to ensure the academic integrity of exam administration.*)

### Security Escorts and Cougar Ride

UHPD continually works with the University community to make the campus a safe place to learn, work, and live. The security escort service is designed for the community members who have safety concerns and would like to have a Security Officer walk with them, for their safety, as they make their way across campus. Based on availability either a UHPD Security Officer or Police Officer will escort students, faculty, and staff to locations beginning and ending on campus. If you feel that you need a Security Officer to walk with you for your safety, please call [713-743-3333](tel:713-743-3333). Arrangements may be made for special needs.

Parking and Transportation Services also offers a late-night, on-demand shuttle service called “Cougar Ride” that provides rides to and from all on-campus shuttle stops, as well as the MD Anderson Library, Cougar Village/Moody Towers and the UH Technology Bridge. Rides can be requested through the UH Go app. Days and hours of operation can be found at <https://uh.edu/af-university-services/parking/cougar-ride/>.

### Syllabus Changes

Please note that the instructor may need to make modifications to the course syllabus. Notice of such changes will be announced as quickly as possible through (*specify how students will be notified of changes*).

## **Additional Recommended Issues to Address in the Syllabus**

### Artificial Intelligence

Instructors are recommended to develop language that will guide students in their use or prohibition of use of AI related tools. If an instructor allows the use of AI tools, they should clearly indicate in what ways they can be used, how they should be cited/reported, and for which assignments they are allowed. Note that Turnitin currently has a filter for ChatGPT, although there is approximately 2% rate of false positives. The following is a collection of classroom policies from a variety of

universities for AI generative tools: [Classroom Policies for AI Generative Tools \(google.com\)](#).

### Online Exams

The Office of the General Counsel has recommended to make sure students are aware that: (1) students are permitted to take their online tests or quizzes in a computer lab or other open space; and (2) there is no requirement that a student use their own personal computer or that they complete exams and quizzes in any specific location (e.g., their home). The Office of the General Counsel has advised that students be made aware in advance that an environmental scan may be conducted as a part of an online exam.