Managing Energy: Risk, Investment, Technology (MERIT)

Section: OPRE 6389-501  Term: Spring 2019
Professor: Metin Çakanyıldırım metin@utdallas.edu  JSOM 3.408
Lecture hours: 7:00-9:45 pm on W  JSOM 1.107
Office hours: 4:00-5:30 pm on M  JSOM 3.408

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Office hours: 5:30-6:30 pm on T at JSOM 14.211.

Course Description: MERIT is designed for students or professionals interested in the energy sector. This sector houses applications from several academic disciplines: Operations Management, Engineering and Technology, Risk Management, Economics and Finance. Students currently involved in these and similar academic programs can take MERIT to learn the fundamentals of the energy sector. MERIT prepares such students and professionals for entry- to mid-level management careers in the energy sector.

MERIT has 4 modules: i) Resources, ii) Technology, iii) Transformation & Transportation, and iv) Risk & Investment. These modules loosely correspond to the material covered by Energy Risk Professional (ERP) certification of Global Association of Risk Professionals. Hence, students upon completing MERIT will find it easier to pass GARP-ERP exam to obtain the certification; see https://www.garp.org/#!/erp. The next exam is on May 18, 2019.

MERIT is not a pure macroeconomics course that studies aggregate demand and supply relationships in the energy sector. Nor is it a pure finance course that studies energy trading and associated financial instruments. Despite embracing principles from economics and finance, MERIT mainly aims to equip students with essential knowledge so that they can function and communicate successfully with various professionals in an energy company.

The energy industry needs qualified professionals. Employment prospects are fueled not only by the growth of the industry but also by an aging employee base, with up to half of the current workforce expected to retire over the next 5-10 years. Even relatively young working professionals can benefit from updating and retooling their skills in the face of important industry developments, including hydraulic fracturing, emergence of new fields and associated logistics challenges, oil-gas price decoupling, smart grids, renewable energy resources and environmental regulations. Home to over 500 energy companies, the DFW metroplex can provide many employment opportunities in the energy industry for the graduate degree holders.

Objectives: MERIT includes discussion so that students

1. Acquire energy terminology and become aware of energy issues.
2. Learn of new technologies for generating/finding/distributing/storing energy.
3. Appreciate the challenge and creativity associated with managing energy.
4. Understand how energy affect businesses, people, society and environment.
5. Offer qualitative and quantitative potential solutions to the issues.

Students will

1. Build analytical skills to objectively evaluate alternative actions of energy firms.
2. Design methods and strategies to improve operations and efficiency of energy firms.

Pre-requisites: Elementary knowledge of calculus & probability, or consent of the instructor. Most importantly, patience & willingness to learn new concepts and methods.
Required Materials:


Case studies, choose 2 out of 5:

1. **Case Study: “Deepwater Horizon”,** by Metin Çakanyıldırım. To be distributed.
2. **Case Study: “Nilchi Wind Farm in White Deer”,** by Metin Çakanyıldırım. To be distributed.

Case studies 3-5 are to be purchased from Harvard business publishing [https://cb.hbsp.harvard.edu](https://cb.hbsp.harvard.edu).

**Supplementary Books - under development:**

You do not need to buy/read these books/material unless you have a special personal interest. Some of them are available at the UTD library.

Assignments & Grading Policy:

4%: Class attendance and contribution to discussion.
+ 7% * 3 Homeworks: Homeworks will have short questions and computations to prepare for quizzes. A student may discuss homework solutions with others but must write it up on his/her own with the full understanding of what is written. Each HW is to be written individually and be submitted to eLearning by 6 pm on the due date. Only 3 highest hw scores will be considered for each student.
+ 14% * 3 Quizes: Four quizzes will be administered, each after the completion of the associated module. Only 3 highest quiz scores will be considered for each student.
+ 10% * 2 Case Reports: Course has 5 cases: “Deepwater Horizon”, “Nilchi at Wind Farm in White Deer”, “SunRun”, “Coal, Nuclear, Natural Gas, Oil, or Renewable”, and “Risk Management at Apache”. Each student will choose 2 cases out of 5 and submit reports for only 2 cases. Each report is to be written individually and be submitted to eLearning by 6 pm on the day of its discussion.
+ 13% = Project proposal 1% + Project report 8% + Presentation 4%: Students will form groups and choose a topic on their own or from suggested ones; more details in projectMerit.pdf on the course web page.

Feb 13: 1-page project proposal. Apr 24: Project report. May 1: Presentation. Each group member has the option to write a report to evaluate others’ contribution to the project.

→ MERIT students earn a letter grade according to their merit of mastering the course material. Their grade is not based on any type of need, amount of effort, family, personal circumstances, or grades in other courses. The following catalogue scheme will guide the grading: A for [90, 100]; A− for [85, 90); B+ for [80, 85); B for [75, 80); B− for [70, 75); C+ for [65, 70); C for [60, 65); C− for [50, 60); F for [0, 50);

UTD & Online Resources

• Linkedin Group called “Managing Energy: Risk, Investment, Technology (MERIT)” is at https://www.linkedin.com/groups/8219265. You are welcome to join the group and meet the alumni of the course.
• Practice Lecture Series: We expect to host 1-2 lectures on campus. They will be on Energy Sector and be given by practitioners from Dallas area companies. Lecture dates will be announced later on the course web site.
• Relevant UTDallas Centers: International Center for Decision and Risk Analysis (ICDRiA) performs interdisciplinary research and develops cooperation in risk management and decision-making by exchanging knowledge and experience among academia, industry, and public agencies. For more info: http://som.utdallas.edu/icdria. Also see http://mgmt.utdallas.edu/c4isn for Center for Intelligent Supply Networks (C4ISN).
• E-Access to Journals via UTD Library: Library electronically subscribes to many journals such as Harvard Business Review, Management Science, which are of interest. To access such a journal go to the UTD Library web page. Click on “E-Journals”. You will see an alphabetical list of journals. Click on “H” for “H”arvard Business Review. You will see that HBR is listed 15-20 from the top among the journals starting with letter “H”. Click on HBR link, you will be transferred to EBSCO web site which keeps the journal. To access from a non-UTD computer, you need UTD ID and password. Please respect the copyright laws.
• Career Center: SOM Career Center http://som.utdallas.edu/somResources/somCareerCenter provides the following services: Career Counseling, Resume Assistance, Interview Assistance, Job Search Assistance, Career Resource Library, Web Resume Database, On Campus Recruiting, Active Internship Program.

The Rest

More details on topics in each MERIT module, list of readings for each topic and a tentative course schedule is provided to students on the first day of the course.