

LSC Use Only: Proposal No:	UWUCC Use Only: Proposal No: 12-57a
LSC Action Date:	UWUCC Action Date: AP 10/30/12 Senate Action Date: AP 12/14/12

Curriculum Proposal Cover Sheet - University-Wide Undergraduate Curriculum Committee

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Proposing Department/Unit	Finance and Legal Studies	Phone	724-357-2465

Check all appropriate lines and complete all information. Use a separate cover sheet for each course proposal and/or program proposal.

1. Course Proposals (check all that apply)

☒ New Course	☐ Course Prefix Change	☐ Course Deletion
☐ Course Revision	☐ Course Number and/or Title Change	☐ Catalog Description Change

Current course prefix, number and full title:

Proposed course prefix, number and full title, if changing: Finance 401/501 Energy Finance

2. Liberal Studies Course Designations, as appropriate
 This course is also proposed as a Liberal Studies Course (please mark the appropriate categories below)

☐ Learning Skills	☐ Knowledge Area	☐ Global and Multicultural Awareness	☐ Writing Across the Curriculum (W Course)
☐ Liberal Studies Elective (please mark the designation(s) that applies – must meet at least one)			
☐ Global Citizenship	☐ Information Literacy	☐ Oral Communication	
☐ Quantitative Reasoning	☐ Scientific Literacy	☐ Technological Literacy	

3. Other Designations, as appropriate

☐ Honors College Course	☒ Other: (e.g. Women's Studies, Pan African) Energy Management Certificate Program
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4. Program Proposals

☐ Catalog Description Change	☐ Program Revision	☐ Program Title Change	☐ New Track
☐ New Degree Program	☐ New Minor Program	☐ Liberal Studies Requirement Changes	☐ Other

Current program name:

Proposed program name, if changing:

5. Approvals	Signature	Date
Department Curriculum Committee Chair(s)	<i>Alan D. Goston</i>	9/05/12
Department Chairperson(s)	<i>Ibrahim A. H. H. H.</i>	9/04/12
College Curriculum Committee Chair	<i>Michelle Hyle</i>	10/18/12
College Dean	<i>Mr. C. Camp</i>	10/15/2012
Director of Liberal Studies (as needed)		
Director of Honors College (as needed)		
Provost (as needed)		
Additional signature (with title) as appropriate		
UWUCC Co-Chairs	<i>Gail S. Sechrist</i>	10/30/12

Received

OCT 19 2012

Liberal Studies

TO grad. School 11-20-12

Syllabus of Record

FIN 401 Energy Finance

3 lecture hours 0 lab hours, 3 credits (3c-01-3cr)

FIN 501 Energy Finance

3 lecture hours 0 lab hours, 3 credits (3c-01-3cr)

Prerequisite: FIN 310 or equivalent/permission

I. Catalog Description

Presents a strategic framework for examining energy finance strategies used primarily in the oil and gas industry. It discusses the wide range of tools available for financing energy projects such as equity, debt, tax credits and other methods used by corporations. It extends the financing framework by describing current theories and applications in developing the energy product and how it is priced and delivered to the end user.

II. Course Outcomes:

Students will be able to:

1. Comprehend the dimensions of energy finance used by corporations.
2. Demonstrate skills in formulating and implementing financing strategies.
3. Define the role of the financial practitioner.
4. Identify appropriate financial tools for optimal results.
5. Evaluate and debate the wide range of possible approaches related to financial issues
6. Assess global energy needs as well as their impact on society.
7. Develop and implement an energy financial plan for a business or non-profit organization.

In addition to the above, Graduate students in this course will be able to:

8. Become familiar with current theoretical and applied research in energy finance.
9. Perform basic conceptual or applied research related to energy finance.

III. Course Outline

- A. Introduction to Energy Finance (3 hours)
 1. Overview of the Energy Field
 2. New Regulations for the Energy Industry
 3. Nature and Scope of the Energy Finance Area
 4. Financial Energy Challenges and Opportunities
- B. Characteristics of the Energy Industry (3 hours)
 1. Research current Information and Insights into Energy Finance
 2. Aspects of the Oil & Gas Industry
 3. Unconventional, Renewable and Alternative Energy
 4. Energy Market Segmentation
 5. Global Trends in Energy Commercial Usage
- C. Energy Finance Dimensions (3 hours)
 1. Models for different Energy Products
 2. Drilling and Extraction
 3. Pipeline Agreements and Construction
 4. Pricing to End User
- D. Changing Patterns of Energy Finance (3 hours)
 1. Energy Trading & Investing
 2. Energy Hedging
 3. Energy Derivatives
- E. Financial Analysis of Energy Companies (3 hours)
 1. Oil and Gas
 2. Coal Mining
 3. Compressed and Liquefied Natural Gas
 4. Nuclear
 5. Solar, Wind and Hydro

- F. Pricing based on Energy Finance (3 hours)**
1. Market Efficiency
 2. Trading Energy Futures & Options
 3. Auction Pricing
 4. International dimensions of pricing

Test#1 (1.5 hours)

- G. The Energy Project Business Plan (3 hours)**
1. Objectives and Strategies
 2. Defining the Market
 3. Plan Evaluation and Implementation
- H. Capital Availability (3 hours)**
1. Forecasting Models
 2. Market Volatility
 3. Impact of Global Unrest
 4. Attraction of Foreign Investments
 5. Investment in Foreign Operations
- I. Project Management in Energy Finance (3 hours)**
1. Cost of Capital
 2. Cash Flow Analysis
 3. Net Present Value
 4. Internal Rate of Return
- J. Supporting for Energy Projects (3 hours)**
1. Loan Guarantees and Grants
 2. Tax Abatements and Incentives
 3. Carbon Cap-and-Trade

Test#2 (1.5 hours)

- K. Trading and Risk Management (3 hours)**
1. Structuring Deals in the Energy Market
 2. Integrated Framework for using Capital
 3. Impact of Online Trading
 4. Fossil Fuel: Supply and Demand
 5. Data Reliability for Option Pricing
- L. Ethical and Public Policy Dimensions (3 hours)**
1. Problems of self regulation in Energy Finance
 2. Privacy Issues
 3. Copyright and Trademark Issues / Sustainable Energy
 4. Role of Government in Energy Finance
 5. Global-Cultural conflicts in Energy Finance
- M. Trends in Energy Finance (3 hours)**
1. Impact of New Energy Sources
 2. Replacement of Traditional Fossil Fuels
 3. Energy Security and Safety Issues
 4. New Extraction Developments / Marcellus / Utica
 5. Hydro Fracturing

Final Exam will be administered during the final exam week (2 hours).

IV. Evaluation Methods

For Undergraduate Students:

Two tests during the semester	40%
Final Examination	30%
Three assignments/written case studies (in groups of two)	30%

For Graduate Students:

Two tests during the semester	30%
Final Examination	20%
Three assignments/written case studies (in groups of two)	20%
Synthesis paper of current research in a subtopic of the field	10%
Research Project Report	20%

Research Project Report (For Graduate Students only):

Graduate students will conduct an exploratory research related to financing options used by energy companies based on the theories/models discussed in class and present their findings in a research report. An example would be: financing a Marcellus drilling program.

Grades will be assigned as follows: A: 90% and above, B: 80%-89%, C: 70%-79%, D: 60-70%; F: Below 70%.

Attendance Policy:

Although there is no formal attendance requirement policy for this class, regular attendance and participation in class discussions and exercises is critical for achieving course objectives.

V. Required Textbook

Simkins, Betty J. and Russell E. Simkins. 2013. Energy Finance and Economics: Analysis and Valuation, Risk Management, and the Future of Energy, John Wiley & Sons.

Errera, Steven and Stewart L. Brown. 2002. Trading Energy Futures & Options. PennWell.

VI. Special Resource Requirements

Classroom must be equipped with Internet access and display capabilities for the teacher.

Students must have access to high speed Internet for 2 hours per week outside of class hours.

VII. Bibliography

Books:

Bryce, Robert. 2003. Pipe Dreams and the Death of Enron, Public Affairs.

Busby, Rebecca. 1999. Natural Gas in Nontechnical Language, PennWell.

Edwards, Davis W. 2009. Energy Trading and Investing: Trading, Risk Management and Structuring Deals in the Energy Market, McGraw-Hill

Errera, Steven, and Brown, Stewart L. 2002. Fundamentals of Trading Energy Futures & Options, 2nd Edition, PennWell.

Finnerty, John D. 2007. Project Financing: Asset-Based Financial Engineering, Wiley.

Fusaro, Peter C. 1998. Energy Risk Management: Hedging Strategies and Instruments for the International Energy Markets, McGraw-Hill.

Gatti, Sthephano. 2007. Project Finance in Theory and Practice: Designing, Structuring, and Financing Private and Public Projects, Academic Press.

Pring, Martin. 1998. Introduction to Technical Analysis, McGraw-Hill.

Razavi, Hossein. 2007. Financing Energy Projects in Developing Countries, PennWell.

Stansberry, Mark A and Reimbold, Jason P. 2008. The Braking Point: America's Energy Dreams and Global Economic Realities, Hawk Publishing (Tulsa).

Journal Articles:

Acumen Capital Advisors, *Activity in the Global Oil & Gas Industries*, The Energy Finance Journal, November 1st 2010.

Aguilar Francisco X. and Zhen Cai. 2010. *Exploratory analysis of prospects for renewable energy private investment in the U.S.*, Energy Economics, Volume 32, Issue 6, November 2010, Pages 1245-1252.

Anyangah Joshua Okeyo. 2010. *Financing investment in environmentally sound technologies: Foreign direct investment versus foreign debt finance*, Resource and Energy Economics, Volume 32, Issue 3, August, Pages 456-475.

Campbell, Paul; Lochbichler, Tom and Simit Dhawan. 2011. *Dodd-Frank compliance forces changes in CTRM vendor-provided capabilities*, Oil & Gas Financial Journal, November.

Carter, David A., Rogers, Daniel A. and Betty J. Simkins. 2006. *Does Hedging Affect Firm Value? Evidence from US Airline Industry*, Financial Management Vol. 35 (No. 2, Spring).

Cotter, John and Jim Hanly. 2012. *A utility based approach to energy hedging*, Energy Economics, Volume 34, Issue 3, May, Pages 817-827

Gormus, N. Alper, *An Analysis of Volatility on Energy Companies during the \$150 Oil*, International Research Journal of Finance and Economics, Issue 91, June 2012.

Kerr, Richard A. 2011. *Do We Have the Energy For the Next Transition*, Science, Vol. 329 (August), page 780-781.

Kumar, Surender; Managi, Shunsuke and, Akimi Matsuda. 2012. *Stock prices of clean energy firms, oil and carbon markets: A vector autoregressive analysis*, Energy Economics, Volume 34, Issue 1, January, Pages 215-226

McCrone, Angus. 2012. *Clean Energy Investment in 2011 Revised up to Record \$280bn*, Bloomberg New Energy Finance, June 11.

Mosiño Alejandro. 2012. *Producing energy in a stochastic environment: Switching from non-renewable to renewable resources*, Resource and Energy Economics, Volume 34, Issue 4, November, Pages 413-430

Sadorsky, Perry. 2012. *Correlations and volatility spillovers between oil prices and the stock prices of clean energy and technology companies*, Energy Economics, Volume 34, Issue 1, January, Pages 248-255,

Yergin, Daniel. 2012. *On the Future of Global Energy*, McKinsey Quarterly, March. World Economic Forum. www.mckinseyquarterly.com.

Zhao, Xiaoping. 2012. *The Impact of CO2 Emission Cuts on Income in 23 OECD Countries*, International Research Journal of Finance and Economics, Issue 92, June.

Course Analysis Questionnaire (UWUC format)

A. Details of the Course

- A1.** This course at the 400 level will be an elective for undergraduate Finance/Accounting Majors and at the 500 level will serve as one of the electives in the Finance Concentration of the MBA Program. It is not intended for inclusion in the Liberal Studies program. The 400 level version of this course has been approved by the Finance & Legal Studies Department.
- A2.** No changes in any other courses or programs in the department are required.
- A3.** This course has not been offered at the 400 or 500 level previously. It is expected that the average class size will be 20 students.
- A4.** The course will be a dual level offering in the Energy Management Certificate of Recognition Program.
- A5.** This course is not to be taken for variable credit
- A6.** Similar courses are offered in a number of energy management programs. For examples see below:

<http://www.mcombs.utexas.edu/MBA/Full-Time/Program-Information/Curriculum/Concentrations/Energy-Finance.aspx>

<http://www.bauer.uh.edu/degrees-programs/certificates/ef.asp>
- A7.** There is no specific recommendation for mandatory inclusion of this type of course by an accreditation authority or professional society. Due to the increasing importance of Energy Management in the global economy, however, there are MBA Programs in the country which have a similar elective course.

B. Interdisciplinary Implications

- B1.** One instructor will teach this course.
- B2.** This course does not overlap with any other course currently offered.
- B3.** Necessary seats will be reserved for students from other departments upon their request.

C. Implementation

- C1.** No new faculty resources are needed to teach this course.
- C2.** Other Resources
 - a. No new space allocation requirements needed.
 - b. Classroom with needed equipment and Internet connectivity available.
 - c. No special Laboratory or supplies needed.
 - d. Internet based research sources are adequate.
 - e. No travel funds needed.
- C3.** No grant funds are involved in this course.
- C4.** This course is expected to be offered once a year.
- C5.** One section of the course will be offered at a time.
- C6.** Maximum of 35 students can be accommodated.

C7. No limitations by our professional accreditation authority on the enrollment limitations on this type of course.

D. Miscellaneous

Integrating the Energy Management Certificate Program into business strategy and practice is one of the most significant emerging trends in recent times. This course will be essential for Finance/Accounting majors and MBA students with a Finance Concentration in preparing for their professional future.