科目ナンバリング	G-LAS10 80027 LE24　G-LAS10 80027 LE43　G-LAS10 80027 LE44						
授業科目名 <英訳>	エナジー・ファイナンス論 Energy Finance			担当者所属 職名・氏名	総合生存学館 准教授　金村　宗		
群	大学院横断教育科目群		分野(分類)	人文社会科学系		使用言語	英語
旧群		単位数	2単位	週コマ数	1コマ	授業形態	講義（対面授業科目）
開講年度・開講期	2026・前期	曜時限	木2	配当学年	大学院生	対象学生	全学向

（総合生存学館の学生は，全学共通科目として履修登録できません。所属部局で履修登録してください。）

[授業の概要・目的]

The course aims to provide theoretical and practical concepts of energy finance (EF), an interdisciplinary topic, and discuss the application of EF to businesses. After shedding light on cutting-edge issues in EF, we enhance the course to a Ph.D research level. Modules 1 and 2 handle existing issues in EF using existing knowledge, which is a must for leading practitioners, while they do not include anything new in the context of academia. Module 3 introduces the research in EF with something new in academics. Module 3 also conducts participants' discussions. Module 1 explains basic ideas in EF (supply-demand, volatility) by comparing it with conventional finance and employing quantitative methods after it overviews energy and carbon markets, including crude oil/natural gas and EU-ETS/Kyoto, resp. Based on Module 1, Module 2 discusses the application of EF to businesses, including investment strategies of power plants using a real-option approach, risk hedging strategies of power generation facilities using weather derivatives, and trading strategies of hedge funds focusing on arbitrage opportunities in energy markets. Module 3 introduces recent research developments in EF. By handling a lot of data in energy and carbon markets, participants conduct practices to find implications of the data. The course finally tries to obtain something new in an academic sense by identifying and solving any new problem through practice.

[到達目標]

Participants obtain new viewpoints on their research by learning the basics and applications of energy finance.

[授業計画と内容]

Module 1
【Class 1】 Overviews of energy finance and objective of the course
【Class 2】 Energy markets
【Class 3】 Carbon and environmental markets
【Class 4】 Asset pricing theory
【Class 5】 Quantitative methods for energy finance
【Class 6】 Role of financial markets in energy and carbon markets
Module 2
【Class 7】 Investment strategies in energy and green projects (Real options approach)
【Class 8】 Risk management in energy and carbon markets
【Class 9】 Trading strategies of hedge funds in energy markets
Module 3
【Class 10】 Cutting edge in energy finance 1: a topic of ``A Supply and Demand Based Volatility Model for Energy Prices"
【Class 11】 Cutting edge in energy finance 2: a topic of ``Financial Turmoil in Carbon Markets"
【Class 12】 Cutting edge in energy finance 3: a topic of ``Market Risk, Credit Risk, and Futures Trading in Commodity Markets"
【Class 13】 Presentation of data analyses of energy markets
【Class 14】 Presentation of data analyses of carbon and environmental markets

エナジー・ファイナンス論(2)へ続く↓↓↓

エナジー・ファイナンス論(2)

【Class 15】 Summary of the course and future directions of energy finance

[履修要件]

特になし

[成績評価の方法・観点]

Comprehensive evaluation based on a term paper and class participation

[教科書]

使用しない

[参考書等]

（参考書）

H. Geman 『Commodities and Commodity Derivatives: Modeling and Pricing for Agriculturals, Metals and Energy』（Wiley）

[授業外学修（予習・復習）等]

Separately instructed

[その他（オフィスアワー等）]

[主要授業科目（学部・学科名）]