



2017-2018

**Nom du cours / Name of the course:**

Energy Derivatives

**Enseignant / Professor:**

René Aïd

**Contact de l'enseignant / Contact Information (Optional)**

Email : rene.aid@dauphine.fr

**Langue d'enseignement / Language :**

English

**Overview:**

This lecture will cover the content of the book Electricity Derivatives (SpringerBriefs 2015), namely : the micro-structure of electricity markets, the problem of electricity price curve modeling and the valuation of derivatives.

**Prérequis / Prerequisites (optional)**

Notions of stochastic process, dynamic optimisation and micro-economy.

**Objectifs du cours / Course Objectives:**

The purpose of this course is to provide students with an overview of both the technical aspects of energy markets (generation, demand, constraints, market organization) as well as the most commonly used price models for pricing energy derivatives. Attention is given to specific energy derivatives (Swing options and powerplants) and computational methods needed are detailed.

## **Mode d'évaluation / Mode of Assessment**

Final exam

## **Planning / Course Schedule**

1	Introduction to energy markets : electricity and gas market designs
2	Price modeling : Spot and Forward models for electricity and gas prices
3	Vanilla energy derivatives
4	Structured derivatives and physical assets
5	Advanced computational methods for stochastic control in energy markets
6	Advanced computational methods for stochastic control in energy markets

## **Bibliographie / Readings (optional):**

Aïd R., Energy Derivatives, SpringerBriefs in Quantitative Finance, 2015.

Clelow L. & Strickland S., Energy Derivatives: Pricing & Risk Management, Lacima Group Pub., 2000.

Eydeland A. & Woliniec K, Energy and Power Risk Management: New Developments in Modelling, Pricing and Hedging, Wiley, 2007.

Géman H., Commodities and commodity derivatives: modelling and pricing for agriculturals, metals and energy, Wiley, 2005.

Swindle G., Valuation and Risk Management in Energy Markets, Cambridge University Press, 2015.

## **MyCourse**

This course is on MyCourse : **No**

## **Grading**

The numerical grade distribution will dictate the final grade, according to the faculty's recommended grade distribution.

**Class participation:** Active class participation – this is what makes classes lively and instructive. Come on time and prepared. Class participation is based on quality of comments, not quantity.

**Exam policy:** In the exam, students will not be allowed to bring any document (except if allowed by the lecturer). Unexcused absences from exams or failure to submit cases will result in zero grades in the calculation of numerical averages. Exams are collected at the end of examination periods.

## **Academic integrity**

Soyez conscient des règles de l'Université Paris Dauphine sur le plagiat et la triche aux examens. Be aware of the rules in Université Paris dauphine about plagiarism and cheating during exams. All work turned in for this course must be your own work, or that of your own group. Working as part of a group implies that you are an active participant and fully contributed to the output produced by that group. When you use the web, please state your sources.