MAT4740/9740
Malliavin calculus and applications to finance

References.

Major reference for the course is the book:

- Di Nunno, Giulia, Øksendal, Bernt, and Proske, Frank: Malliavin calculus for Lévy processes with applications to finance.*Springer-Verlag, Berlin,* Corrected second printing, 2009.

Other important reference for Malliavin calculus in Gaussian framework are:

- Nualart, David: The Malliavin calculus and related topics. Second edition.*Springer-Verlag, Berlin,* 2006.
- Sanz-Solé, Marta: Malliavin calculus. *EPFL Press, Lausanne; distributed by CRC Press, Boca Raton, FL,* 2005.

In addition some research papers have been used on specific topics (available in eprint at UiO).

Clark-Ocone formula under change of measure:

- Ocone, Daniel and Karatzas, Ioannis: A generalized Clark representation formula, with application to optimal portfolios. *Stochastics Stochastics Rep.* 34 (1991), no. 3-4, 187–220.

For the computation of the Delta in Lévy framework:

- Benth, Fred Espen, Di Nunno, Giulia, and Khedher, Asma: Lévy models robustness and sensitivity. *Quantum probability and infinite dimensional analysis,* 153–184, QP–PQ: Quantum Probab. White Noise Anal., 25, *World Sci. Publ., Hackensack, NJ,* 2010.
- Benth, Fred Espen, Di Nunno, Giulia, and Khedher, Asma: Robustness of option prices and their deltas in markets modelled by jump-diffusions. *Commun. Stoch. Anal.* 5 (2011), no. 2, 285–307.

Other support references.

Stochastic analysis and calculus

- Øksendal, Bernt: Stochastic differential equations. An introduction with applications. Sixth edition. *Springer-Verlag, Berlin,* 2003.
- Protter, Philip E.: Stochastic integration and differential equations. Second edition. Version 2.1. Corrected third printing. *Springer-Verlag, Berlin,* 2005.
- Applebaum, David: Lévy processes and stochastic calculus. Second edition. *Cambridge University Press, Cambridge,* 2009.

General probability

- Kallenberg, Olav: Foundations of modern probability. Second edition. *Springer-Verlag, New York,* 2002.

Functional analysis

- Yosida, Kōsaku: Functional analysis. Reprint of the sixth (1980) edition. S*pringer-Verlag, Berlin,* 1995.
- Weidmann, Joachim: Linear operators in Hilbert spaces. *B. G. Teubner, Stuttgart,* 2000.