Probability and Stochastic Processes - 098418
Lévy processes

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Time and place: Wednesday, 14:30, Bloomfield 310.

The course will concentrate on Lévy processes and related topics.
As time permits we will cover some or all of the following topics.

1. Introduction: Lévy processes. Infinitely divisible distributions. Lévy-Khintchine formula.
2. The Lévy-Itô decomposition and path structure.
3. Transience and recurrence.
4. Subordinators.
5. Local times of a Lévy process.
6. Fluctuation theory.
7. Connection with branching processes.

References We shall not be following any particular book. The following are useful references for different aspects of the course.

1. J. Bertoin. Lévy processes. Cambridge Tracts in Mathematics, 121. Cambridge University Press, Cambridge, 1996.
2. A. Kyprianou. Introductory lectures on fluctuations of Lévy processes with applications. Universitext. Springer-Verlag, Berlin, 2006.
3. R.A. Doney. Fluctuation theory for Lévy processes. Lectures from the 35th Summer School on Probability Theory held in Saint-Flour, July 6–23, 2005. Lecture Notes in Mathematics, 1897. Springer, Berlin, 2007.