Fractal Geometry (L24)

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I aim to cover the following topics,

- self-similar sets and measures;
- fractal dimensions - Hausdorff, Minkowski, and entropy dimensions;
- projections of fractals to linear subspaces;
- intersections of fractals with affine subspaces;
- dimension of self-similar sets with overlaps;
- Bernoulli convolutions;
- self-affine sets and measures (as time permits).

Pre-requisites

Measure theory, basic ergodic theory, basic Fourier analysis.

Literature

The following sources are relevant for the first few topics mentioned above.

1. P. Mattila, Geometry of sets and measures in Euclidean spaces. Cambridge University Press, Cambridge, 1995.
2. K. Falconer, Techniques in fractal geometry, John Wiley & Sons, 1997.