Fine-scale statistics in number theory, geometry and dynamics
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How do you measure ``randomness'' in a given deterministic sequence of points? This minicourse provides an introduction to the basic tests that capture statistical independence and correlations (Lecture 1) and applies them to sequences arising naturally in number theory, dynamical systems and geometry (Lectures 2 & 3). The fundamental tool used in our analysis is the ergodic theory for flows on homogeneous spaces. The course is aimed at a broad mathematical audience and does not assume specific prerequisites.