The frequency of chaos

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In linear dynamics, an operator T is said to be hypercyclic when it possesses a dense orbit, i.e. a vector x such that the sets $N(x,U) = \{n \geq 1 : T^n x \in U\}$ is non-empty (or equivalenty infinite) for every non-empty open set U. During the last two decades, researchers tried to better understand when we can require that there is an orbit visiting each non-empty open set by respecting some frequency. Several stronger notions of hypercyclicity have then been introduced (frequent hypercyclicity, U-frequent hypercyclicity, reiterative hypercyclicity,...) depending on the considered frequency. Another interesting notion in linear dynamics is the notion of chaotic operators, i.e hypercyclic operators with a dense set of periodic points. A natural question is "Which impact the existence of a dense set of periodic points can have on the frequency of visits of some dense orbits?". In this talk, we will try to give an overview on the main results related to this question.