Abstract: The notion of a topological field theory has proved to be an extraordinarily useful scheme for organizing and known invariants of maniold and for predicting the structure of new ones. In this talk I’ll explain the notion of a topological field theory, and the way in which trying to classify them forces topologists to re-examine some of the oldest assumptions in topology. I’ll also explain recent joint work with Jacob Lurie giving a complete classification of topological field theories in (very) low dimensions.