Title: The structure of the Turing degrees

The course will concentrate on analyzing the local and global structure of the Turing degrees $\mathcal{D}$, the degrees below that of the halting problem, $\mathcal{D}(\leq \mathbf{0}')$, and Turing jump ideals (sets of degrees closed downward and under join and jump). Sample theorems include characterizing the complexity of the theory of these structures and analyzing the subsets and relations definable in them as well as their possible automorphisms. The main technique exploited will be forcing in arithmetic. We will also deal extensively with the relations between degree theoretic properties and rates of growth of functions in those degrees.