On nondegeneracy of curves

We study the conditions under which an algebraic curve can be modelled by a Laurent polynomial that is nondegenerate with respect to its Newton polytope. Nondegenerate polynomials are popular objects in explicit number theory and algebraic geometry because of their connection with toric geometry. We determine the dimension of the space of nondegenerate curves, and we prove that there are exactly two curves of genus at most 3 that are not nondegenerate: one over $\mathbb{F}_2$ and one over $\mathbb{F}_3$, each with remarkable extremal properties.