Twisted generalized Weyl algebras (TGWAs) are a family of algebras that includes as special cases a lot of algebras of interest in representation theory. They are defined by generators and relations starting from a base ring $R$ and the choice of an $n$-tuple of elements in the center of $R$, together with an $n$-tuple of commuting automorphisms of $R$, that have to satisfy certain consistency equations. I will explain how to classify TGWAs, up to graded isomorphism, in the case where $R$ is a polynomial ring over a field of characteristic zero. This is joint work with Jonas Hartwig.