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In this talk we will characterize the Leavitt path algebras over arbitrary graphs which are weakly regular rings as well as those which are self-injective. Concretely we will show the following:

Let E be an arbitrary graph and K a field.

- The Leavitt path algebra $L_K(E)$ is left (right) weakly regular if and only if the graph E satisfies Condition (K), and
- $L_K(E)$ is left (right) self-injective if and only if the graph E is row-finite, acyclic and every infinite path contains a line point.

Along the way, we extend and prove several results on projective, injective and flat modules over Leavitt path algebras and, more generally, over not necessarily unital rings with local units. (Received August 31, 2009)