For an integral domain $D$ with field of fractions $K$, the ring over integer-valued polynomials on $D$ is $\text{Int}(D) = \{f \in K[x] \mid f(D) \subseteq D\}$. In this talk, we will discuss how to construct generalizations of $\text{Int}(D)$ by using skew polynomials. Given an automorphism $\sigma$ of $K$, the skew polynomial ring $K[x; \sigma]$ consists of polynomials with coefficients from $K$, and with multiplication given by $xa = \sigma(a)x$ for all $a \in K$. We define

$$\text{Int}(D; \sigma) = \{f \in K[x; \sigma] \mid f(D) \subseteq D\},$$

which is the set of integer-valued skew polynomials on $D$. When $\sigma$ is not the identity, $K[x; \sigma]$ is noncommutative and evaluation behaves differently than it does for ordinary polynomials. Despite these difficulties, we will show that $\text{Int}(D; \sigma)$ has a ring structure in many cases. While multiplication in these rings is manifestly noncommutative, we can construct interesting commutative rings of polynomials by considering only those polynomials in $\text{Int}(D; \sigma)$ whose coefficients are fixed by $\sigma$. Properties of the above rings that may be discussed in this talk include elements, prime and maximal ideals, chain conditions, and behavior under localization. (Received July 30, 2018)