A century ago, Hurwitz showed how Fourier series can be used to study geometric properties of curves in the Euclidean plane that bound convex sets. Ten years ago, Helmut Groemer wrote a book on the subject—Geometric Applications of Fourier Series and Spherical Harmonics. It turns out to be convenient to enlarge the scope to include all oriented smooth closed curves (in the plane) that have, for $0 \leq \phi \leq 2\pi$, exactly one point where its directed tangent makes an angle of $\phi$ with the positive $x$-axis. Such a curve has a parametrization $z(\phi): \mathbb{R} \to \mathbb{C}$, where $z(\phi) = z(\phi + 2\pi)$ and the unit tangent vector is $e^{i\phi}$ for all $\phi \in \mathbb{R}$. These curves form a vector space over $\mathbb{R}$ that properly contains the boundaries of convex sets. Since many of the properties of such curves that one can investigate using Fourier series involve only algebra, much remains valid when $\mathbb{R}$ and $\mathbb{C}$ are replaced by some other field and its quadratic extension. In particular, I am interested in the geometry of the planes represented by the finite field $\text{GF}(q^2)$—for $x$ and $y$ elements of the finite field $\text{GF}(q)$ of order $q$, the point $(x, y)$ corresponds to $z = x + iy$, where $i$ is an element of $\text{GF}(q^2)$ that is not in $\text{GF}(q)$. In fact, there is a point to this generalization: the use of finite Fourier series sheds light on a 50-year-old problem of Beniamino Segre, who sought a way to classify the ovals of finite projective planes. An oval is defined to be a set of $q + 1$ points, no three on a line; it can be represented by a Fourier series that resembles that of its continuous kin.