One of the oldest problems in knot theory is: Given knots $K$ and $J$, how can we determine if they are the same or different? In 1928 James Alexander introduced a polynomial invariant of knots now known as the Alexander polynomial. If two knots have different Alexander polynomials, then this proves that they are different knots. In more recent years the Alexander polynomial has been extended to the “twisted” Alexander polynomial. In this talk will discuss both of these invariants and explain how to compute them for an infinite class of knots known as 2-bridge knots. Even for this relatively simple family of knots, many interesting questions and conjectures remain open. (Received September 21, 2011)