Residual stress analysis has trended to neutron and synchrotron beamlines as problems and shapes become more complicated. Advances in laboratory diffractometer technology allow some of these complex samples to be examined using a traditional laboratory system. This talk will highlight the residual stress of small gears and 3D printed metal components using a laboratory system. Practical considerations such as grain statistics and penetration depth will be discussed. Alternative methods, such as the multi-hkl approach generally reserved for thin film analysis, will be discussed regarding their applicability to complex bulk specimens.