This thesis explores various, yet equivalent, approaches to introducing the Lebesgue integral in $\mathbb{R}$. The first chapter delves into the historical development from infinitesimal calculus to the emergence of the Lebesgue integral. The second chapter introduces Lebesgue's original approach to integration and three different methods for defining this integral. The final chapter focuses on specific examples where all introduced definitions are illustrated and compared with the Riemann and Kurzweil integrals. The thesis provides a comparison of these approaches to introducing the Lebesgue integral, emphasizing their mutual equivalence and practical applications.