Abstract: An important theme in number theory is to understand the values taken by the Riemann zeta-function and related L-functions. While much progress has been made, many of the basic questions remain unanswered. I will discuss what is known about this question, explaining in particular the work of Selberg, random matrix theory and the moment conjectures of Keating and Snaith, and recent progress towards estimating the moments of zeta and L-functions.