# CHAPTER OVERVIEW

## 4: Basic Concepts of Probability: The math

NOTE: The following chapter is from an Introductory Statistics book by Shafer and Zhang. You may notice a slight change of tone/voice in the way it is written.

Suppose a polling organization questions 1,200 voters in order to estimate the proportion of all voters who favor a particular bond issue. We would expect the proportion of the 1,200 voters in the survey who are in favor to be close to the proportion of all voters who are in favor, but this need not be true. There is a degree of randomness associated with the survey result. If the survey result is highly likely to be close to the true proportion, then we have confidence in the survey result. If it is not particularly likely to be close to the population proportion, then we would perhaps not take the survey result too seriously. The likelihood that the survey proportion is close to the population proportion determines our confidence in the survey result. For that reason, we would like to be able to compute that likelihood. The task of computing it belongs to the realm of probability, which we study in this chapter.