CHAPTER OVERVIEW

20: Bayesian Statistics

Learning Objectives

- Describe the main differences between Bayesian analysis and null hypothesis testing
- Describe and perform the steps in a Bayesian analysis
- Describe the effects of different priors, and the considerations that go into choosing a prior
- Describe the difference in interpretation between a confidence interval and a Bayesian credible interval

In this chapter we will take up the approach to statistical modeling and inference that stands in contrast to the null hypothesis testing framework that you encountered in Chapter 16. This is known as "Bayesian statistics" after the Reverend Thomas Bayes, whose theorem you have already encountered in Chapter 10. In this chapter you will learn how Bayes' theorem provides a way of understanding data that solves many of the conceptual problems that we discussed regarding null hypothesis testing.