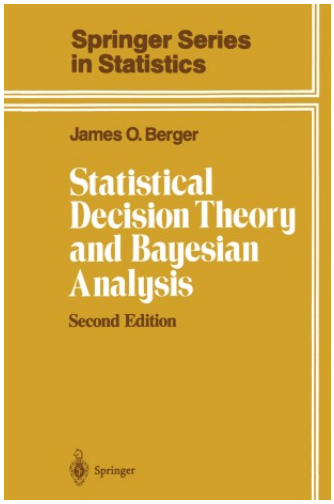
# Preface

**Note.** James O. Berger' *Statistical Decision Theory and Bayesian Analysis* Second Edition (NY: Springer-Verlag, 1985) is (see page *vii*) "...Bayesian analysis and decision theory provide unified outlooks towards statistics; they give a foundational framework for thinking about statistics and for evaluating proposed statistical methods. ...This [Bayesian theory of statistical inference] recognizes the importance of viewing statistical analysis conditionally (i.e., treating observed data as known rather than unknown)..."




**Note.** The background for this course is a "moderately serious statistics course." This background would be attained in, for example, a math stats sequence such as ETSU's Mathematical Statistics 1 and 2 (STAT 4047/5047 and 4057/5057); see my online notes for Mathematical Statistics 1 and Mathematical Statistics 2 (notice that Chapter 11 is on Bayesian statistics). The level of math assumed it that given in a three-semester calculus sequence and some exposure to senior level Analysis 1 and 2 (MATH 4217/5217 and 4227/5227) (such as Riemann-Stieltjes integrals).

**Note.** The first edition of the book was simply *Statistical Decision Theory: Foundations, Concepts, and Methods*, NY: Springer-Verlag, (1980). Berger (a self-professed "rabid Bayesian") in trying to revise his book to act as a text for both decision theory and for Bayesian analysis added material on hierarchical Bayes theory (Section 4.6), Bayesian calculation (Section 4.9), Bayesian communication (Section 4.10), and combination of evidence (Section 4.11).

**Note.** Since we are interested in Bayesian analysis and rigor (or "theory"), then we follow Berger's suggested material for a one semester course that is a "Mainly Bayesian Course (More Theoretical)." We cover Chapter 1 (except 1.4 and 1.8), Chapter 2 (except 2.3), Chapter 3 (except 3.5.5 and 3.5.6), Chapter 4 (except 4.7.6 and 4.7.7), and Chapter 7 (except subsections 7.4.2 to 7.4.10, and sections 7.5 and 7.6).

*Revised: 2/26/2022*