



STATISTICS 460-3
BAYESIAN STATISTICS

Fall 2004
DAY COURSE

Instructor: Dr. T. SWARTZ

Prerequisites:

STAT 330 and STAT 350

Textbook:

No text required.

References:

Bayes and Empirical Bayes Methods for Data Analysis (Carlin & Louis)
Bayesian Data Analysis (Gelman, Carlin, Stern & Rubin)

Course Description:

An introduction to the Bayesian approach to statistics. Comparative statistical inference, prior distributions.

Outline:

1. The basics:

the Bayesian paradigm
comparative statistical inference

2. Priors:

conjugate priors
prior elicitation
reference priors
improper priors
discrete mass priors

3. Computations:

quadrature
importance sampling
Markov chain Monte Carlo

4. Other topics:

testing via Bayes factors
interval and point estimation
elementary decision theory
hierarchical models
Dirichlet process

5. Applications:

Grading

TBA

Students should be aware that they have certain rights to confidentiality concerning the return of course papers and the posting of marks. Please pay careful attention to the options discussed in class at the beginning of the semester.

Revised April 2004