



**STATISTICS 460-3**  
**BAYESIAN STATISTICS**

Fall 2002  
DAY COURSE

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**Instructor: DR. T. SWARTZ**

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**Prerequisites:**

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**

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**Grading**

Presentation - 15%  
Participation - 10%  
Assignments - 25%  
Final Exam - 50%

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**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 June 2002