

SPRING 2017 - STAT 460 D100

**BAYESIAN STATISTICS (3)**

Class Number: 4161 Delivery Method: In Person

**COURSE TIMES + LOCATION:**

Tu 11:30 AM – 1:20 PM

AQ 4130, Burnaby

Th 11:30 AM – 12:20 PM

AQ 4130, Burnaby

**EXAM TIMES + LOCATION:**

Apr 12, 2017

8:30 AM – 11:30 AM

EDB 7618, Burnaby

**INSTRUCTOR:**

Tim Swartz

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Office: SC-K10539

**PREREQUISITES:**

STAT 330 and 350.

## Description

**CALENDAR DESCRIPTION:**

The Bayesian approach to statistics is an alternative and increasingly popular way of quantifying uncertainty in the presence of data. This course considers comparative statistical inference, prior distributions, Bayesian computation, and applications. Quantitative.

**COURSE DETAILS:****Course 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 as time permits:**

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

**5. Applications**

## Grading

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Participation	15%
Assignments	20%
Midterm	20%
Final Exam	45%

### NOTES:

***All grading is subject to change.***

## Materials

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### RECOMMENDED READING:

**-Bayes and Empirical Bayes Methods for Data Analysis (Carlin & Louis)**

**-Bayesian Data Analysis (Gelman, Carlin, Stern & Rubin)**

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### DEPARTMENT UNDERGRADUATE NOTES:

#### Students with Disabilities:

Students requiring accommodations as a result of disability must contact the Centre for Students with Disabilities 778-782-3112 or [csdo@sfu.ca](mailto:csdo@sfu.ca)

#### Tutor Requests:

Students looking for a Tutor should visit <http://www.stat.sfu.ca/teaching/need-a-tutor-.html>. We accept no responsibility for the consequences of any actions taken related to tutors.

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