**Introduction to Bayesian Statistics**

Fall 2022

Credit hours: 3

Class Time: Tuesday 9:00 – 10:15 AM, Thursday 10:30-11:45 AM

Classroom: 32211

Office hours: TBA

INFORMATION ON COURSE INSTRUCTORS

Instructor: Keunbaik Lee, Professor of Statistics

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Important announcements, lecture notes, homework problems and solutions, references, computational codes, data sets and other information about the class are posted on the course website.

Textbook

**Required –** No text

**Recommended –** Gelman, Carlin, Stern, and Rubin, 2nd Edition. Bayesian Data Analysis

Peter M. Lee. Bayesian Statistics: An Introduction, 4th Edition*.* Wiley: New York

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Prerequisites

Regression Analysis, Introduction Mathematical Statistics, and Introduction to Statistical Inference

COURSE OBJECTIVES

Bayesian methods are gaining increasing popularity in the theory and practice of statistics. The objectivity of the present course is to introduce the students to some of the basic Bayesian methods. There will be many examples and exercise to illustrate the main points. We will also discuss Bayesian diagnostic issues as well as aspects of Bayesian computing.

**Topics (tentative)**

**1. Introduction to the Bayesian Paradigm**

**2. One-parameter Models**

**3. Multi-parameter Models**

**4. Estimation and Hypothesis Testing**

**5. Hierarchical Models**

**6. Bayesian Computation**

EVALUATION AND GRADING PROCEDURES

1. Exams (90%): in-class exams

Tentative schedule: October 18 (Tuesday: 45%) and December 6 (Tuesday: 45%).

The exams will be one-hour exams. No make-up exams will be given except for medical or family emergencies, and must be approved before the time of the exam. Calculator may be used for the exams.

1. Homework (5%)

Assignments are due at the start of the class period. All computer output must be edited and annotated. Solutions will be made available on the course web site.

1. Attendance (5%)

POLICIES AND EXPECTATIONS

1. Students are required to attend all classes
2. No late assignments will be accepted.
3. If there is an error in the test questions, the test questions and the questions associated with them shall be graded with perfect scores.