Instructor: Dr. Anh T. Bui

Contact Information: Office: Grace Harris Hall 4132; Phone: 804-828-1942; Email: buiat2@vcu.edu

Office Hours: Tue 1-2pm & Thu 2-3pm in my office.

Textbook: There will be no required textbook in this course. The below references are optional:

  An introductory book about nonparametric statistics with many examples.

  A more advanced book about nonparametric statistics that focuses more on the methodological aspects.

- The Elements of Statistical Learning, Second Edition, Trevor Hastie, Robert Tibshirani, and Jerome Friedman, Springer.  
  An advanced book for regression and classification. There is also a more introductory book from the same authors.

  An advanced book for nonparametric density estimation methods.

Class time and location: TT 5:30pm-6:45pm at Grace Harris Hall 2127

Prerequisite: Probability and statistical inference such as STAT 513, STAT 546 or with my permission. No prior knowledge of nonparametric statistics is required.

Course Description: The course covers both classical and modern nonparametric statistical methods, which require relatively mild assumptions about the population. Classical methods include nonparametric hypothesis testing methods for one-, two-, and multiple-sample methods, confidence interval estimation, association, and bootstrap. Modern methods include nonparametric regression and density estimation. R will be used for statistical computing in this course.

Grading Policy: Homework (25%), presentation (25%), in-class exam (25%), final project (25%), and class participation.

Homework Assignments: This course has five homework assignments in total. Homework assignments are due at the beginning of the classes on the due dates. Late submission will not be accepted. You are encouraged to discuss on homework assignments, but you must write your own solutions.

Presentation: About seven topics in nonparametric statistics will be assigned to students to present. Tentatively, the presentations will take place from Weeks 3 to 8. Submit your slides on Blackboard on the
same day with and before the presentation. Evaluation will be based on the quality of both your slides and talk.

**In-class Exam:** There will be one in-class exam, tentatively scheduled on Oct 24 (Thursday). This will be an open book and note exam.

**Final Project:** The project is done individually or in a group of two students, depending on the number of students. There are two types of project you can select:

- Criticize a research paper about its development/application of nonparametric statistical methods.
- Apply/develop nonparametric statistical methods for your research problem.

Detail will be discussed during the semester. Some milestones are below:

- Project proposal (5pts): due on Sep 24
- Progress report (5pts): due on Nov 12
- Presentation (5pts): on Dec 3 and 5
- Peer-evaluation (5pts): each group evaluate other groups’ presentations; due on Dec 6
- Final report (5pts): due on Dec 13

**VCU Statements:** Students should visit [http://go.vcu.edu/syllabus](http://go.vcu.edu/syllabus) and review all syllabus statement information. The full university syllabus statement includes information on safety, registration, the VCU Honor Code, student conduct, withdrawal and more.

This syllabus is subject to change at any time at the discretion of the instructor.