Instructor & TA:
Name: Dr. Yang Cheng
Phone: (301)763-3287
E-mail: yangcheng@gwu.edu
Office hours: MONDAY: 5:30-6:00 PM, 8:40 – 9:30 pm, or by appointment
Teaching Assist: Ms. Xiruo Song, xr0330@email.gwu.edu

Course Description:
Nonparametric statistical inference involves very few assumptions about the probability distribution that generated the data. We assume things like independence of observations, but not, for instance, normality. Classical nonparametric testing methods use rank based statistics, but almost any statistic can be made "nonparametric" via the concept of a permutation test - sometimes called a randomization test. We will cover nonparametric tests for one, two and k samples, tests for independence, and confidence intervals for location (e.g. for the mean or median of a distribution). Throughout, we will consider inference based on a population probability model and based on permutation testing. We will also compare the power of various tests.

Course Requirements:
STAT 6201 and STAT 6202.

Textbook:

Learning Outcomes: As a result of taking this course, students will be able to:

- Identify scenarios in real life (science, engineering, economics, finance, and legal) which warrant a treatment by Nonparametric methods and be able to Formulate, design and carry out Nonparametric Inference.
- Understand and apply some modern computer intensive resampling methods like (parametric and nonparametric) bootstrapping and jackknifing in order to construct estimates or confidence intervals.
- Construct and apply locally most powerful rank tests for various models.
- Implement modern and sophisticated nonparametric curve fitting methods.

Homework and Projects: Homework will be assigned in the lecture every other week. Your homework will be collected two weeks later.
Midterm: One closed-book in-class midterm examinations will be given around Nov 4th. If the midterm is missed, you will receive zero credit for that part of the grade. No make-up midterm will be given. In exceptional circumstances (e.g. well-documented medical problems), a missed midterm will not be counted when computing your course grade.

Class Presentation: Students are required to present a paper/topic in the class towards the end of the semester. You can choose your own topic (subject to approval). Some suggestions will be provided.

Course Grading: Your final letter grade will be based on a total score computed as follows:
- Homework 30%
- Midterms 30%
- Presentation 40%

A grade of INCOMPLETE will ONLY be given to a student who is passing the course and cannot complete the course due to illness or other (documented) circumstances beyond their control.

Code of Academic Integrity: All examinations, papers, and other graded work products and assignments are to be completed in conformance with The George Washington University Code of Academic Integrity. It states: “Academic dishonesty is defined as cheating of any kind, including misrepresenting one’s own work, taking credit for the work of others without crediting them and without appropriate authorization, and the fabrication of information.” For the remainder of the code, see: http://www.gwu.edu/~ntegrity/code.html

SUPPORT FOR STUDENTS OUTSIDE THE CLASSROOM

DISABILITY SUPPORT SERVICES (DSS)
Any student who may need an accommodation based on the potential impact of a disability should contact the Disability Support Services office at 202-994-8250 in the Marvin Center, Suite 242, to establish eligibility and to coordinate reasonable accommodations. For additional information, please refer to: http://gwired.gwu.edu/dss/

UNIVERSITY COUNSELING CENTER (UCC) 202-994-5300
The University Counseling Center (UCC) offers 24/7 assistance and referral to address students' personal, social, career, and study skills problems. Services for students include: 1. crisis and emergency mental health consultations; 2. confidential assessment, counseling services (individual and small group), and referrals http://gwired.gwu.edu/counsel/CounselingServices/AcademicSupportServices

SECURITY
In the case of an emergency, if at all possible, the class should shelter in place. If the building that the class is in is affected, follow the evacuation procedures for the building. After evacuation, seek shelter at a predetermined rendezvous location.