STA 5106 Computational Methods in Statistics I

Fall 2021

Course Information

Class Meeting Place:	108 OSB
Class Meeting Time:	T Th 11:35am - 12:50pm (Lecture)

Instructor: Dr. Wei Wu

E-mail:	wwu@fsu.edu
Office Hours:	T Th 11:00-11:30am
Zoom Link for Office Hours:	https://fsu.zoom.us/j/97665120662

Teaching Assistant: Yue Mu

E-mail:	ym18e@my.fsu.edu
Office Hours:	W 2-3pm
Zoon Link:	https://fsu.zoom.us/j/93705274085

Textbook: *Computational Statistics*, by G. H. Givens and J. A. Hoeting (Optional)

Course Objectives: To gain an understanding of the techniques and ideas used in implementing mathematical/statistical formulations on computers, with a focus on common statistical approaches. Students will obtain practice in using MATLAB. The use of Python is optional.

Prerequisite: basic probability and statistics, linear algebra, and advanced calculus.

Topics

- Linear Methods for Regression Analysis
- Principal Component Analysis
- Nonlinear Methods for Maximum Likelihood Estimation
- Elementary Pattern Recognition
- Simulation of Random Variables
- Monte-Carlo Methods for Integration
- Dynamic Programming

Grading: Homework (50%), Quizzes (10%), Midterm Project (20%), Final Project (20%). The midterm project is graded for both the report (15%) and the presentation (5%). The final project is graded only for the report.

   Exception: For students who finish homework programming problems using both MATLAB and Python, they have an option to skip the final project and will automatically receive the perfect score for it.

Course Policy

- **Classroom policies:**
  - You are encouraged to attend all classes.
  - Come to the classroom **on time**.
  - Be quiet during the class.

- **Homeworks:** The homework problems will typically be assigned every Thursday and be due the next Thursday. The homework should be turned in using the Canvas system before the class. The submission must be in the PDF format. The homework should be either neatly written and then scanned, or typed using Word or Latex. You can work with other students, but each student must independently finish his/her own solutions. **No late homework!**

- **Academic honor policy:** The Florida State University Academic Honor Policy outlines the University's expectations for the integrity of students' academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process. Students are responsible for reading the Academic Honor Policy and for living up to their pledge to ". . . be honest and truthful and . . . [to] strive for personal and institutional integrity at Florida State University." (Florida State University Academic Honor Policy, found at http://dof.fsu.edu/honorpolicy.htm.)

- **Students with disabilities:** Students with disabilities needing academic accommodation should:
  (1) register with and provide documentation to the Student Disability Resource Center; and
  (2) bring a letter to the instructor indicating the need for accommodation and what type.
  This should be done during the first week of class.
  For more information about services available to FSU students with disabilities, contact the:

  Student Disability Resource Center
  97 Woodward Avenue, South
  108 Student Services Building
  Florida State University
  Tallahassee, FL 32306-4167
  (850) 644-9566(voice)
  (850) 644-8504 (TDD)
  sdrc@admin.fsu.edu
  http://www.disabilitycenter.fsu.edu/