

STA 5106 Computational Methods in Statistics I

Fall 2024

Course Information

Class Meeting Place: 110 OSB
Class Meeting Time: T Th 9:45 - 11:00am (Lecture)

Instructor: Dr. Wei Wu

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Office: 106C OSB
Office Hours: T Th 11-11:30am

Teaching Assistant: Menghan Lin

E-mail: mlin3@fsu.edu
Office: 106D OSB
Office Hours: W 10-11am

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 (40%), Quizzes (20%), Midterm Project (20%), Final Project (15%), Attendance (5%). The midterm project is graded for both report (15%) and presentation (5%). The final project is graded only for 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 **required** to attend all classes
 - Come to the class **on time**
 - Be quiet

- **Homework:** The homework problems will typically be assigned every Thursday and be due the next Thursday. The homework must be neatly written, preferably typed. You can work with other students, but each student must independently finish his/her own solutions. **No late homework!**
- **Quizzes:** There will be a quiz in class every two weeks except holidays or project periods. The quizzes are open-book. If a student cannot make a quiz due to personal illness, family emergency, or conflict of university events, he/she must inform the instructor before or within one day after the test. A makeup test can be arranged if sufficient document on the absence is provided.
- **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/>