Syllabus
Fall 2024
STA4702 Multivariate Statistical Analysis
STA5701 Applied Multivariate Methods
Department of Statistics, University of Florida

Course information.

Lectures	Mo, We, Fri, 10:40AM–11:30PM in Anderson Hall 0034		
Zoom	`https://ufl.zoom.us/my/kekvall`		
Instructor	Ekvall, Karl Oskar	*Teaching assist.*	Somani, Dhanashree
Office	103A Griffin–Floyd	*Office.*	–
Email	k.ekvall@ufl.edu	*email.*	dhanashreesomani@ufl.edu
Office phone	352-273-3001		
Office hours	Tuesday 08:00–09:00 AM (Zoom)	*office hours.*	–
	Friday 08:00 - 09:00 AM		–

Course objective. STA4702/5701 introduces statistical methods for settings where there is more than one variable of interest. After successful completion of the course, students will be familiar with several popular methods for multivariate statistical analysis, including methods for dimension reduction, regression, clustering, classification, multivariate time series, and graphical analysis. The focus is on how to use the methods in practice, using the statistical computing language R, but motivating theory and underlying assumptions are also discussed.

Course topics. Topics include graphics and basic programming in R, matrix algebra, the multivariate normal distribution, maximum likelihood estimation, multivariate linear regression, factor methods, principal components analysis, discrimination and classification, hierarchical and K-means clustering, longitudinal data, and vector autoregressive models.

Prerequisites. (STA 3024 or STA 4210 or STA 4322 or STA 6127 or STA 6167) and (MAS 3114 or MAS 4105 or the equivalent).

Course webpage. Course materials (e.g., homework assignments and due dates) will be posted the course's eLearning site (Canvas), where grades will also be posted. Please check this site regularly for updates and announcements.

Textbook. Applied Multivariate Statistics with R (2nd Ed.) by Daniel Zelterman (`https://link.springer.com/book/10.1007/978-3-031-13005-2`).

Please note that access to the textbook is *required* as homework assignments will often be from the book.

Assessment. Course grades will be based on 4 homework assignments and 3 in-class examinations. The final score (0–100) will be 0.4 times the average exam score plus 0.6 times the average homework assignment score. Letter grades will be assigned based on the following cutoffs:

Grade	Percentile
A	100% - 93%
A-	93% - 90%
B+	90% - 87%
B	87% - 83%
B-	83% - 80%
⋮	⋮
D-	63% - 60%
F	60% -

The instructor may adjust cutoffs downward when assigning final course grades. Homework assignments will be submitted and graded electronically through the course eLearning site. Submission must be written in R Markdown or Quarto. Please be aware of UF grading policies: `https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/`

- *Tentative exam dates*:
    1. Wednesday, Sep 18
    2. Wednesday, Oct 30
    3. Wednesday, Dec 4
- *Tentative homework due dates*:
    1. Wednesday, Sep 4
    2. Wednesday, Oct 2
    3. Wednesday, Oct 16
    4. Wednesday, Nov 13

- Any changes to the tentative dates will be announced in class or on the eLearning site.

Missed exam or homework. Missed exams and late homework assignments will receive a grade of zero, except in cases of emergency. If an exam or homework will be missed for a non-emergency reason, the student must notify the instructor *at least two weeks prior* to the exam date and provide proper documentation. When an exam is missed or a homework assignment is late for a medical reason, a doctor's note or equivalent documentation should be provided.

Attendance: Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies. Click here to read the university attendance policies: https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/

Students with Disabilities. Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc/) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Online course evaluation process. Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at `https://gatorevals.aa.ufl.edu/students/`. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via `https://ufl.bluera.com/ufl/`. Summaries of course evaluation results are available to students at `https://gatorevals.aa.ufl.edu/public-results/`.