

MAT 755 Multivariate Statistical Analysis SPRING 2013 SYLLABUS

Instructor: Thomas John, Ph.D.

Carnegie 219A, 443-1587(office), 443-3849(message/math-dept), thjohn@syr.edu.

Class: Tue & Thu 9:30 AM - 10:50 AM in Carnegie 311.

Office Hours: Tue & Thu 2:00-3:00 PM, and by appointment.

Text: *Applied Multivariate Statistical Analysis*, by Richard A. Johnson and Dean W. Wichern, 6th edition, ISBN-13: 978-0-13-187715-3.

Course Description:

(per course catalogue: *Multivariate normal distribution, conditional densities, partial correlation, multiple correlation, regression coefficients, maximum likelihood estimates, Hotelling's statistic, Wishart distribution, tests of hypotheses, and linear discriminant functions.*)

Analysis of multivariate observations will be covered with equal emphasis on theory and examples. Course will begin with reviews of concepts needed from linear algebra and mathematical statistics. Then the course will proceed through important multivariate sampling distributions and multivariate inference procedures. The latter part of the semester will focus on applications of multivariate methods such as principal component analysis, factor analysis, clustering, and classification.

R statistical software (<http://www.r-project.org>) will be used for computations.

Prerequisite: MAT 525 & MAT 532 or graduate standing in mathematical sciences.

Grading: Grades for the course will be assigned based on two exams (20% each), assignments (40%), and attendance/participation (20%). The exam dates are to be announced.

Attendance: You are expected to attend every class. If you miss a class, it is your responsibility to obtain a copy of the lecture notes for that class from another student. You are also responsible for any announcements about changes to the schedule/requirements/policies.

Academic Integrity: The Syracuse University Academic Integrity Policy holds students accountable for the integrity of the work they submit. Students should be familiar with the policies. Serious sanctions can result from academic dishonesty of any sort. For more information and the complete policy, see <http://academicintegrity.syr.edu>.

Learning Goals and Expectations: Students are expected to use/understand probability & statistics related mathematical notations & concepts, master the basic notions of multivariate statistical analysis, select/apply appropriate computational methods, and acquire the skills necessary for the applications of these topics.

Disabilities: If you believe that you need accommodations for a disability, please contact the Office of Disability Services (ODS), <http://disabilityservices.syr.edu>. Please contact me privately to discuss your academic needs although I cannot arrange for disability-related accommodations.

Key Dates:

Monday, February 4: Financial deadline to drop class

Tuesday, March 19: Academic drop deadline

Tuesday, April 16: Withdrawal deadline