Multivariate Data Analysis (STAT 755) Spring 2009
Sarah H. Fleischmann Building (SFB), Room 103
TR 4:00-5:15PM
3 credits

Instructor: Ilya Zaliapin  Office: Ansari Business Bldg., Room 609
Office hours: M 11:00-1:00PM + TR 10:00-10:45 AM + by appointment
Phone: (775) 784-6077  E-mail: zal@unr.edu
Course web page: http://unr.edu/~zal/STAT755.htm

Catalog description: Statistical analysis of multivariate data. Multivariate normal and related
distributions, multivariate linear regression, canonical correlation analysis, principal components,
factor analysis, discrimination and classification.

Required textbook:
• R. A. Johnson and D. W. Wichern, Applied Multivariate Statistical Analysis, 5th ed,
Prentice Hall.

Tentative list of topics (may change slightly as class proceeds):
• Matrix Algebra and Random Vectors
• Sample Geometry and Random Sampling
• Multivariate Normal Distribution
• Multivariate Linear Regression
• Principal Components
• Factor Analysis
• Canonical Correlations
• Discrimination and Classification
• Cluster analysis

Home works will be assigned weekly; they are not graded and intended solely for midterm
preparation. You are encouraged to discuss HW assignments between each other and with
instructor during office hours.

Quizzes: There will be occasional pop quizzes that contribute to 5% of your overall performance.

Statistical Lab is an integral part of the course. The class will meet in a computer lab
approximately every second week to learn/discuss applied statistical techniques using the
package R (free open-source version of S-plus). Take-home lab assignments will require
application of statistical techniques to real or synthetic data sets. The results should be presented
in a form of illustrated reports (we will discuss the report writing in the class). Previous knowledge
of R is not required. The R portal with downloads, manuals, FAQs, and much more is located
at: http://www.r-project.org/. You are encouraged to discuss the Lab assignments and can do
them in groups, but your reports have to be written individually and demonstrate that you are able
to perform the presented analysis independently. You may use any other statistical package if
you like, but all instructions and discussions in the class will refer only to R.

Midterms: There will be two midterms; the dates will be announced later.
**Final exam:** A comprehensive final exam will be given on Thursday, May 7, 2009, 4:30-6:30PM

**Grading policy:** Your letter grade (which may include + or −) for the course will be based on Statistical Lab reports (30% altogether), two midterms (15% each), final exam (40%), and quizzes (5%).

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**Prerequisites:** MATH 330, MATH 461, Co-requisite: STAT 452.

**Important dates:**

Thu, January 29, 2008: Final date for late registration and paying all tuition and fees (with late registration penalties included). Final date to receive a 100% refund if dropping individual classes or completely withdrawing from the university.

Fri, March 13, 2008: Final drop date for individual classes.

See more at [http://www.ss.unr.edu/records/](http://www.ss.unr.edu/records/)

**Disability statement:** The Department of Mathematics and Statistics supports providing equal access for students with disabilities. Any student needing accommodations for a specific disability is encouraged to meet with instructor or any Department representative at your earliest convenience to ensure timely and appropriate accommodations.