1. **Course title and description**

   Course title: STAT5103   High Dimensional Data Analysis   *1st semester, 2018-2019*

   Instructor: Professor CHEUNG Siu Hung [Lady Shaw Building 117, phone (off.): 39437928]

   Time and Venue (Lecture):   Tuesday 6:30pm – 9:30pm [Wu Ho Man Yuen Bldg 403]

Description:

This course emphasizes statistical methods for analyzing and interpreting high-dimensional data that are common in business management, marketing research and other behavioral sciences. Selected topics include canonical correlations, classification, principal component, and factor analysis.

3. **Pre-requisites**

   a) Elementary Statistics and basic distribution theories
   b) Basic knowledge in calculus and linear algebra

4. **Assessment Scheme**

Type	Description	Weight
Assignment	Around 8 sets of assignments	30%
Midterm	2 A-4 size formula sheet (written on both sides) allowed	30%
Final Examination	2 A-4 size formula sheets (written on both sides) allowed	40%

5. **Feedback for evaluation**

Students' comments and feedback are valuable for improving the course, and students are welcome to provide comments and feedback via various channels. Mid-term course evaluation and course evaluation will be conducted for the course. For comments that require immediate action, please send to Professor SH CHEUNG directly via e-mail (shcheung@cuhk.edu.hk) or to the teaching assistants.

6. **Teacher's and TA's contact details**

Professor/ Lecturer/ Instructor	
Name:	Professor CHEUNG Siu Hung
Office Location:	LSB 117
Telephone:	39437928
Email:	shcheung@cuhk.edu.hk
Personal Website:	http://www.sta.cuhk.edu.hk/shcheung/

Teaching Assistants
  CHUNG, Ka Pui [Lady Shaw Building 126, CHUNG, Ka Pui 1155048332@link.cuhk.edu.hk]

7. Course schedule

Date (2015)	Topic
Sept 4	• Brief overview of the course • Matrix algebra (Chapter 2)
Sept 11	• Matrix algebra (Chapter 2) • Review of basic distribution theory
Sept 18	• R: Brief overview • Correlation and simple linear regression • Multiple regression
Sept 25	• **Holiday: Mid-Autumn Festival**
Oct 2, 9	• Multinormal distribution: Estimation and Testing
Oct 16	• **Midterm**
Oct 23	• Principal components analysis
Oct 30	• Principal components analysis • Factor analysis
Nov 6	• Factor analysis
Nov 13	• Cluster analysis
Nov 20	• Discriminant analysis
Nov 27	• Canonical correlation analysis
Dec 4	• **Final**

8. A facility for posting course announcements

You may use the University *e*-learning platform to access course information and course materials. The website is managed by the University. Should you have enquiry on the system, please contact Mr. Julian Wong (julianwong@cuhk.edu.hk) by e-mail. Should you have comments on the course content, please contact Professor SH CHEUNG directly (shcheung@cuhk.edu.hk) or contact the teaching assistant.

9. Learning resources

a. Lecture notes

For students' easy reference, lecture notes have been prepared in the format of power point files or pdf files. Students can download the files from the University *e*-learning platform.

b. Assignments

All assignments and their due dates will be posted on the University *e*-learning platform.

c. Major reference book

• Wolfgang Karl Härdle and Léopold Simar. Applied Multivariate Statistical Analysis 4th edition. Springer.

10. Academic honesty and plagiarism

Honesty for Academic Works: A Guide for Students and Teachers

Attention is drawn to University policy and regulations on honesty in academic work, and to the disciplinary guidelines and procedures applicable to breaches of such policy and regulations. Details may be found at http://www.cuhk.edu.hk/policy/academichonesty/ .