

# Introduction to Multivariate Statistics

PhD Course, 7,5hp, Autumn 2022

*Department of  
Business Studies,  
Uppsala University*

# Introduction to Multivariate Statistics

Course Plan  
Autumn 2022 (2022H)

**Instructor:** Professor James Sallis  
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**Link to sign up:**  
<https://doit.medfarm.uu.se/bin/kurt3/kurt/54386>

This is an introductory course for doctoral students with minimal statistical background. This 7.5 point course is meant to give students a basic understanding for a range of quantitative statistical techniques. The basics of data, such as measurement level, normality, outliers, and missing data will be discussed, and then some of the more widely used analysis techniques will be demonstrated. The students will get hands-on experience through simple practical exercises using SPSS software. From their laptops they can access the SPSS software within the building. The goal is for students to understand the potential for these techniques as well as interpret results.

Topics:

1. Introduction to multivariate techniques.
2. Examining your data.
3. Exploratory factor analysis.
4. Multiple regression.
5. Discriminant analysis.
6. Logistic regression.
7. Analysis of variance.
8. Cluster analysis.
9. Confirmatory factor analysis (LISREL).

Language: I will teach the course in English, although students are welcome to speak and write in Swedish.

Evaluation: Term paper (in English or Swedish) – discussion and statistical analysis of supplied data or the student's own data.

**Schedule:** Spring 2022

Week	Date	Time	Room	Description	Lit.
42	Monday October 17	11-13 14-16	K334	Introduction to Multivariate Statistics Examining your data	Ch. 1 Ch. 2
	Tuesday October 18	10-12 13-15	K334	Factor analysis Factor analysis	Ch. 3 Ch. 3
43	Monday October 24	11-13 14-16	K334	Multiple regression Multiple regression	Ch. 4 Ch. 4
	Tuesday October 25	10-12 13-15	K334	Discriminant analysis Logistic regression	Ch. 5 Ch. 6
44	Monday October 31	11-13 14-16	K334	Analysis of Variance (t-tests) Analysis of Variance (Anova & Manova)	Ch. 14 Ch. 14
	Tuesday November 1	10-12 13-15	K334	Structural Equation Modeling (LISREL) Structural Equation Modeling (LISREL)	Ch. 11-13 Ch. 11-13

Ekonomikum: K334, entrance Kyrkogårdsgatan 10C, 1 st. up left

**Literature:**

Hair, Black, Babin & Anderson (2013), Multivariate Data Analysis: Pearson New International Edition, 7th Edition  
ISBN13: 9781292021904

Pallant, J. (2020) SPSS Survival Manual: A Step by Step Guide to Data Analysis Using IBM SPSS. 7 ed. Open University Press. ISBN 0335249493, ISBN 978033524949