



Course Core Curriculum		
Code : STC710	Type :	Title : Statistics and Chemometrics
Number of credits: 3		Number of contact hours per week:
Pre-requisites:		
Co-requisites:		
<p>Course Description (<i>Slight introduction</i>):</p> <p>The purpose of this course is to help doctorates to analyze their data using applied statistics and chemometrics to enhance the practical and methodological aspects of their work. The course will present the main techniques of chemometrics and classical statistical tests used (descriptive and inferential statistics, explanatory methods, and data analysis). A general and practical presentation of the main methods, a help in the interpretation of the results and examples will be fully treated by using statistical softwares.</p>		
Course Timetable		
CRN: 22412		Section: E01
Class Time: M/Tu/Th 16:00-20:00 (16 --- 26 March 2020)		Class location: H013
Instructor: Dr. Nathalie Estephan		
Email: nathalieestephan@usek.edu.lb		
Major Topics Covered in the Course		
Week	Topic	
1	Introduction : Statistical data; Descriptive plots ; Statistical inference	
2	Statistical errors, confidence intervals and limits	
3	Statistics of repeated measurements	
4	Overview of classical statistical tests and basic statistical models	
5	Significance tests : One-sided and two-sided tests	
6	F-test for the comparison of standard deviations	
7	The chi-squared test	
8	Analysis of variance (ANOVA)	
9	Testing outliers	
10	Regression methods	
11	Introduction to Multivariate Analysis	
12	Pretreatment methods	
13	Principal Components Analysis (PCA)	
14	Factorial Discriminant Analysis (FDA)	
15	Partial Least Square Analysis (PLS)	