1. COURSE SYLLABUS OF

Advanced Statistics

Academic year 2011/12

2. PROFESSOR	Armin Schmitt	**3. ECTS CREDITS**	3
OFFICE	Building K, Room 2.13	**SCIENTIFIC FIELD**	Biostatistics
E-MAIL ADDRESS	armin.schmitt@unibz.it	**OFFICE PHONE**	0471-017138
WEB PAGE	http://		
COURSE PAGE	http://www.unibz.it/en/sciencetechnology/progs/phd/phdmountainenvironment/default.html		

4. COURSE HOURS	20	**LECTURES**	12
		EXERCISES AND LABS	8
		OTHERS	0

5. STUDY PROGRAMME	PhD programme "Management of Mountain Environment"	**6. PHD IN**	Management of Mountain Environment
7. YEAR	1st	**SEMESTER**	2
8. PROGRAMME STATUS	Compulsory	**9. COURSE LANGUAGE**	English

10. DESCRIPTION	This course provides the statistical concepts that are necessary for successful scientific work. The concepts will be introduced by means of examples. The solution of problems using the free statistical software programme R will be explained. Special emphasis is put on the graphical representation of data. Basic statistics will be revised.
11. TEACHING FORMAT and ORGANIZA-TION	12 hours of lectures, 8 hours of practical PC exercises. Analysis of own data is possible if of interest for all participants.
12. LEARNING OUTCOMES	By the end of the course, students should be able to: 1. identify statistical and mathematical issues of their own scientific work; 2. acquire and handle their own data; 3. to analyse their own data and to present them graphically; 4. to review critically results and conclusions; 5. to apply the statistical programme R for the solution of statistical problems and for the generation of graphical figures;

13. TOPICS	The topics treated include: 1. Descriptive statistics (measures of location and dispersion); 2. Assessment and handling of raw data 3. Detection of outliers 4. Distributions 5. Graphical representation of data 6. Contingency tables 7. Hypothesis testing (e.g. t-tests, Wilcoxon-test, Chi-square-test) 8. Correlation 9. Linear regression 10. Fundamentals of modelling 11. ANOVA 12. PCA 13. Cluster analysis
14. BASIC BIBLIOGRAPHY	Handouts in the Reserve Collection.
15. ELIGIBILITY	Students regularly enrolled in the PhD Programme “Management of Mountain Environment"
16. RECOMMAN-DATIONS	The participants should have sufficient knowledge of the English language and interest in the application of quantitative methods in their field.
17. STUDENT ASSESSMENT	No grades are given.