Module: Statistical Methods of Data Analysis 2 (PHY525)						
Degree Program: Physics (M.Sc.)						
Frequency:	Duration:	Semester:	Credits	Work load		
in WS	1 week block course	1st sem.	3	90 h		

	Element / Course	Туре	Credits	Contact hours				
Language:	Lecture			per week				
		L	3	Block course				
-	2 Language: English							
<ul> <li>Content         Building on the lecture "Statistical Methods of Data Analysis", the course covers coverage probabilities (frequentist vs. Bayesian confidence intervals), deepening of the method of least squares with emphasis on applications with low statistics and not a priori known variances, application of multivariate selection methods, deconvolution using density mixture models and as a parameterization problem, Markov Chain, Monte Carlo, separation of signal and background using sWeights, event-by-event efficiencies, harmonic analysis and Lomb periodogram, robust statistics.     </li> <li>Learning outcome         Students will gain advanced insights into statistical analysis of data, building on lecture PHY523, "Statistical Methods of Data Analysis"     </li> </ul>								
<b>Examination</b> Examination: Written module examination (90min) or oral module examination depending on the number of participants.								
<b>Participation Requirements:</b> Desired: Programming knowledge in a suitable language (FORTRAN, C, JAVA, C++, or similar)								
Module type Elective module								
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	probabiliti east squa variances, nixture mo eparation harmonic a <b>Learning o</b> Students v PHY523, " <b>Examinati</b> Desired: F similar) <b>Module ty</b> Elective m <b>Responsib</b>	probabilities (frequentist vs. Bayesian confide east squares with emphasis on applications we variances, application of multivariate selection inxture models and as a parameterization pro- separation of signal and background using sWe harmonic analysis and Lomb periodogram, rob Learning outcome Students will gain advanced insights into sta PHY523, "Statistical Methods of Data Analysis Examination Examination: Written module examination (90 on the number of participants. Participation Requirements: Desired: Programming knowledge in a suita similar) Module type	brobabilities (frequentist vs. Bayesian confidence intervals) east squares with emphasis on applications with low statist variances, application of multivariate selection methods, dee nixture models and as a parameterization problem, Markov separation of signal and background using sWeights, event-the narmonic analysis and Lomb periodogram, robust statistics. Learning outcome Students will gain advanced insights into statistical analys PHY523, "Statistical Methods of Data Analysis" Examination Examination: Written module examination (90min) or oral monthe number of participants. Participation Requirements: Desired: Programming knowledge in a suitable language similar) Module type Elective module Responsible Faculty in cha	orobabilities (frequentist vs. Bayesian confidence intervals), deepening east squares with emphasis on applications with low statistics and not variances, application of multivariate selection methods, deconvolution mixture models and as a parameterization problem, Markov Chain, Mont separation of signal and background using sWeights, event-by-event eff marmonic analysis and Lomb periodogram, robust statistics. Learning outcome Students will gain advanced insights into statistical analysis of data, PHY523, "Statistical Methods of Data Analysis" Examination Examination: Written module examination (90min) or oral module exam on the number of participants. Participation Requirements: Desired: Programming knowledge in a suitable language (FORTRAN, similar) Module type Elective module Responsible Faculty in charge				