

Module Number PP2	Title: Project Proposal		
Module type: compulsory		Language: English	Group Size: 1 student (course a, b); 20 students (course c, d)
Study semester: 3		Availability: winter semester	Duration: 8 weeks
Workload: 450 hrs	Credits: 15 CP	Contact time:	Independent Study:
1	Courses <ul style="list-style-type: none"> a) Placement b) Faculty Seminar c) Lecture Data Analysis 1 PPW d) Practical Course Data Analysis 2 PPW 		
2	Intended Learning Outcomes <p>The project proposal serves as a preparatory exercise for the Master's thesis. Students perform an 8-week placement in a working group on an experimental project of their choice. After completion a project sketch for the Master's thesis is to be drawn up. Lectures and practicals in statistical data analysis support the ability of the students to statistically analyse their data.</p> <p>After completing the module the students should be able to independently carry out a self-selected experimental project in the field of translational neuroscience. They are capable to draw up and present a written concept (project sketch) for the Master's thesis. Upon completion of the data analysis part the students will be able to perform statistical analyses of different types of medical and biological data and to employ the statistical software R for these data analyses. The students will acquire knowledge on statistical methods such as testing procedures, analysis of variance, regression approaches, and principle component analysis, on how to use these methods for a statistical data analysis, as well as on good practice in planning a study, preparing data sets for a statistical analysis, and presenting the results of such analyses., a They will be able to decide which of these methods to use in which situation and to apply these procedures to the data.</p>		
3	Content <p>a) Placement: Students perform an 8-week placement in a working group on a experimental project of their choice. The topic of the experimental work performed is variable and depends on faculty or working group.</p> <p>b) Faculty Seminar: The project is to be presented orally at the faculty seminar.</p> <p>c) Lectures Data Analysis: The course starts with a basic, practical introduction to the statistical software environment R, which is the most popular, advanced software for statistical data analysis. This knowledge on R is successively extended during the course. It is discussed how graphics and descriptive statistics can be generated in R and should be generated in general to present and summarise the data and the results of a data analysis in a best practice way. General statistical procedures such as testing approaches, multiple testing methods, analysis of variance, regression approaches (e.g., linear and generalized linear models), and dimension reduction procedures (e.g., principle component analysis) often used in the statistical analysis of medical, biological, and genetic data are described, focussing on the practical aspects of these procedures. Moreover, good practice in planning a study as well as in preparing a data</p>		

	<p>set for a statistical analysis in, e.g., R is discussed. This last part of the data analysis course is tailored to the specific needs of the current Master students and allows them to ask specific questions concerning the statistical aspects of their project proposal.</p> <p>d) Practicals Data Analysis: All methods taught in the data analysis lecture is practised by the students by applying them, in particular, in R to data from different types of studies. If already available, the students can bring their own data and apply the procedures to these data during the practicals.</p>
4	<p>Teaching methods Practical course, lectures with accompanying exercises, project sketches, faculty seminar</p>
5	<p>Prerequisites Formal: Depends on faculty or working group; Successful completion of module "Pilot Project". Proficiency in English level B2 of Common European Framework of Reference for Languages (CEFR) With regards to content: Depends on faculty or working group.</p>
6	<p>Examination types: Written examination on data analysis</p>
7	<p>Requirements for award of credit points Participation in the placement and the faculty seminar, presentation of own results/data in the Faculty seminar and a concluding written project sketch for the Master's thesis, a pass in the module final exam. Return signed and filled in routing card to coordinator.</p>
8	<p>Module applicability (in other study courses)</p>
9	<p>Assessment The mark given will contribute to the final grade in proper relation to its credits.</p>
10	<p>Module convenor and main lecturers a) and b) Variable c) and d) Prof. Dr. Holger Schwender</p>
11	<p>Further information Register directly with the faculty/working group for the placement. Return signed and filled in routing card to coordinator.</p>