HMI 504	**Experimental Design and Statistical Methods**	
When:	Monday afternoons, 13.15 - 17.00. One break only at approximately 15.00	1/2
Where:	Röda rummet, IAV/IKP, Hus A, ingång 19	
Mentor:	Kip Smith, IAV/IKP kipsm@ikp.liu.se	
Lab/Office hours:	Thursdays 13.15 - 15.00, Hus A, Common room, IAV/IKP, Hus A, ingång 19	
	Participation in the lab sessions are voluntary.	
	It is a time to ask questions and work on answers.	

Calendar of class sessions:

Part 1: Expectations and review.

04-01-19	13.15 - 17.00	Qualifying exam handed in and discussed. QuALMRI rubric. APA style.
		Single factor between and within designs. T tests.

Part 2: Modeling the relationship between sets of observations.

04-01-26	13.15 - 17.00	Linear regression. Estimations of model parameters.
04-02-2	13.15 - 17.00	Assessing the aptness of a model. Analysis of residuals. Multicollinearitv. Multiple regression. Polynomial regression.
04-02-9	13.15 - 17.00	General linear model (regression == ANOVA). Chi square test.
		Identifying outliers.

Part 3: The design and analysis of experiments 2/2

04-02-16	13.15 - 17.00	Single factor, completely randomized design. Fixed model, 1 way ANOVA. Estimation of factor levels.
04-02-23	13.15 - 17.00	Sample size and power. Analysis of residuals. Transformation of data. Random effects model, 1 way ANOVA.
04-03-1	13.15 - 17.00	Multiple factor, completely randomized designs. Fixed model, N x M ANOVA.
04-03-8	13.15 - 17.00	Randomized block designs (repeated measures).
04-03-15	13.15 - 17.00	Multiple factors, random and mixed effects designs.

Part 4: Class project.

04-03-22		No session. Students conduct experiments for class project.
04-03-29		No session. Students conduct experiments for class project.
04-04-5		No session. Students conduct experiments for class project.
04-04-12		Religious holiday.
04-04-19	13.15 - 17.00	Student presentations.
04-04-26	13.15 - 17.00	Final paper due.