课程大纲
COURSE SYLLABUS

1.	课程代码/名称 **Course Code/Title**	高等统计推断 Advanced Statistical Inference
2.	课程性质 **Compulsory/Elective**	必修课 Compulsory
3.	课程学分/学时 **Course Credit/Hours**	3/48
4.	授课语言 **Teaching Language**	英文 English
5.	授课教师 **Instructor(s)**	荆炳义/蒋学军 Bing-Yi JING/Xuejun JIANG
6.	是否面向本科生开放 **Open to undergraduates or not**	否 No
7.	先修要求 **Pre-requisites**	高等统计学 Advanced Statistics
8.	教学目标 **Course Objectives**	
	学生在完成本课程后，应该能够：（1）深入了解统计学基本原理；（2）了解不同统计模型的优缺点.（3）能够在面对不同问题中，选择合适的统计方法；（4）用统计模型和统计包解决实际问题。 Upon successful completion of this course, students should be able to: (1) Gain a deeper understanding of statistical principles; (2) Understand pros and cons of different statistical models; (3) Be able to choose the appropriate estimators and tests under different scenarios; (4) Solve real problems using statistical models and statistical packages.	
9.	教学方法 **Teaching Methods**	
	讲授+习题/辅导/讨论 Lectures + Tutorials	
10.	教学内容 **Course Contents**	
	Section 1	Likelihood Inference
	Section 2	Exponential Family and Applications
	Section 3	Mean and Quantile Regression
	Section 4	Basis Expansion and Regularisation
	Section 5	Estimating Equations and Quasi-Likelihood
	Section 6	Resampling Methods
	Section 7	Multiple Testing

Section 8	EM, MM and MCMC	
Section 9	Bayes Inference and Empirical Bayes	
Section 10	Hierarchical Models	

11.	课程考核 **Course Assessment**	
	作业: 30%, 项目: 20%, 期末考试: 50% Homework: 30%, Project: 20%, Final Exam: 50%	
12.	教材及其它参考资料 **Textbook and Supplementary Readings**	
	1. Lehmann, E. L. Theory of Point Estimation. Springer. 2. Pawitan, Y. In All Likelihood. Oxford.	