Workshop of Genome Wide Association Study
Wuhan, July 4-9, 2016

Professor: Zhiwu Zhang

Lecture: 8:30-10:00 AM and 10:30-Noon
Lab: 1:30-4:30 PM (By teaching assistants: Xiaolei Liu, Jiabo Wang and Meijing Liang)

Objectives: 1) to explore the values hidden behind your research data; 2) to realize your personal analytical potentials; and 3) to contribute scientific community with computing tools.

Attendance: Participation in each lectures is expected, including lab. Asking questions and contribution to discussions are part of lecturing theme in addition to homework and exams.
Grade: Participation (20%), final exam (30%) and Homework (50%). No late assignments will be accepted.
A (93%-100%); A- (90%-93%); B+ (87%-90%); B (83%-87%) B- (80%-83%); C+ (77%-80%); C (73%-77%); C- (70%-73%) D+ (66%-70%); D (60%-66%); F(0%-60%)

Homework: Due at 5:00 PM each day.
Exams: July 9, 90 minutes (1:30-3:00PM), 50 questions.

Certificate: To participants with with grade D and above.

Schedule

Lecture	Lecture	Section	Title	HW due
1	7/4/16	Fundamental	Syllabus, introduction, and R (L01, L02)	
2	7/4/16		Random variables and distribution (L03)	
3	7/5/16		Statistical inference (L04)	
4	7/5/16		Linear algebra (L05)	HW1
5	7/6/16		Genetic architecture and simulation of phenotype (L08)	
6	7/6/16	GWAS	Mechanism of GWAS (L10)	
7	7/7/16		Power, type I error and False Discovery Rate (L11)	
8	7/7/16		General Linear Model (GLM) (L13)	
9	7/8/16		Structure and Kinship (L12, L14)	
10	7/8/16		Mixed Linear Model (MLM) and Compression (L15, L16)	HW2
11	7/9/16		SUPER GWAS method (L19)	
12	7/9/16		FarmCPU (L21)	Exam
	7/21/16			HW3