

NORBIS: Genetic epidemiology and genome-wide association analyses

COURSE PROGRAM 2020

Yunsung Lee?

Lecturers: Håkon K. Gjessing, Anil Jugessur, Rolv Terje Lie, ~~Miriam Gjerdevik~~, Øystein Ariansen Haaland, Øyvind Helgeland, Julia Romanowska, Jon Bohlin, Bjørn Olav Åsvold?

Day I: Monday May 4

10:00-11:30 Getting to know R better. Presentations/practicals. (~~MG~~, ØAH, JR)

Using R: [Brief introduction, data handling, R-studio.](#)

NOTE: Participants who are already very familiar with R may meet at 11:30.

11:30-12:00 Welcome & Introduction. Course overview. (HKG)

12:00-13:00 LUNCH

13:00-14:00 General introduction to genetic epidemiology Lect. I. (AJ)

14:00-17:00 R in genetics. Presentations/practicals. (~~MG~~, ØAH, JR)

[More on R, Read data into Haplin, PLINK \(only to produce ped-files\)](#)

Day II: Tuesday May 5

09:00-11:00 General introduction to genetic epidemiology Lect II+III. (AJ)

11:00-12:00 Registry studies, familial clustering, recurrence risk. Lecture. (RTL)

12:00-13:00 LUNCH

13:00-17:00 Quality control, Imputations etc. PLINK. Presentations/practicals. (ØH)

Day III: Wednesday May 6

09:00-09:30 Data preparation of GWAS family data with Haplin/ff package. Lectures/practicals. (~~MG~~, ØAH, JR)

09:30-12:00 Association analyses in Haplin. Lectures/practicals. (HKG, ~~MG~~, JR)

[Models behind Haplin, Analyses in Haplin, Interpretations of results](#)

12:00-13:00 LUNCH

13:00-13:30 Sample size calculations for association analyses. (~~MG~~)

13:30-14:45 ~~Using Haploview. Primer to meta-GWAS.~~ (AJ) **New topic?**

14:45 -15:30 Using Hettionet (JR)

15:30-17:00 Post-processing of results. (ØAH) [Some topics: qq-plots, q-values \(from Bioconductor\), regional plots, volcano plots, multiple testing corrections.](#)

19:30 COURSE DINNER!

Day IV: Thursday May 7

09:00-10:00 Special inheritance models in Haplin. X-chromosome, Parent-of-origin effects. Lecture. (HKG)

10:00-12:00 EWAS/Methylation data analyses (JB)

12:00-13:00 LUNCH

13:00-14:00 Exercises EWAS/Methylation (JB)

14:00-15:00 Methylation case about clock (YL)?

15:00-16:00 Exercises/group work EWAS. Guided tour of Armauer Hansen lab (RTL).

Day V: Friday May 8

09:00-10:30 Multiple testing and GxE w/Haplin (HKG)

10:30-11:30 Mendelian randomization (BOÅ)

11:30-12:00 Exercises/group work. Power + sample size.

12:00-13:00 LUNCH

13:00-14:00 Orofacial clefts case study (RTL)

14:00-14:30 Presentation from NORBIS (Ragna Breines?)

14:30-16:00 Wrap-up/summary, prepare take-home project, course evaluation

Return take-home project within May 22