



*****DRAFT*****

Dates: June 18 – 22, 2018

Location:

Institute for Social Research, Room 1430
University of Michigan

Before you arrive in Ann Arbor...

Online Introduction to R

Online Introduction to Linux

MONDAY, June 18

8:30 - 9:00 Light breakfast and coffee served

9:00 - 9:30 *Introduction to the Workshop*
Jessica Faul & Colter Mitchell

9:30 - 10:15 *Introduction to biology and genetics – understanding genomic data in populations*
Kelly Bakulski

10:15 - 11:00 *Population stratification and admixture – avoiding the pitfalls and utilizing the strength of ancestry and admixture*
Jennifer Smith

11:00 - 11:15 Break

11:15 - 12:00 *Quality control – estimating and interpreting minor allele frequency, understanding strands, Hardy-Weinberg equilibrium, heterozygosity, linkage disequilibrium,*
Jennifer Smith

12:00 - 1:00 Boxed Lunch Provided

1:00 - 1:45 *Collecting, extraction, and storing genetic material; cost and coverage of different platforms/chips*
Jessica Faul

1:45 - 4:45 *Lab:*
Linux Mini and Computing
Understanding genetic file types and the content of the files

Viewing and exploring Genome-wide data
Erin Ware

5:00 *Social Event at ISR*

TUESDAY, June 19

8:00 - 8:30 Light breakfast and coffee served

8:30 - 9:00 Recap of the previous day and questions

9:00 - 9:45 *Imputation – basic explanation of genotype imputation, inputs and outputs, using online reference panels HapMap and 1000 Genomes Project*
Jennifer Smith

9:45 - 10:30 *Intro to the Wisconsin Longitudinal Study*
Pam Herd, University of Wisconsin

10:30 - 10:45 Break

10:45 - 11:15 *Exploring the Microbiome*
Pam Herd, University of Wisconsin

11:15 - 12:00 *GWAS and meta analyses - alleles, effects, models, p-values, SNP-based heritability, MTAG*
Jennifer Smith

12:00 - 1:00 Lunch (on your own)

1:00 - 4:00 *Lab: Understanding and working with different genomic coding schemes*
Assessing genomic data quality control
Erin Ware

WEDNESDAY, June 20

8:00 - 8:30 Light breakfast and coffee served

8:30 - 9:00 Recap of the previous day and questions

9:00 - 9:45 *Statistical Power issues - multiple testing and replication*
Colter Mitchell

9:45 - 10:30 *Structural and rare variants*
Jennifer Smith

10:30 - 10:45 Break

10:45 - 11:30 *Gene-environment interaction models – from candidate genes to GWAS data-based models, formal testing GxE*

Colter Mitchell

11:30 - 12:00 *Telomeres*
Colter Mitchell

12:00 - 1:00 Lunch (in small groups)

1:00 - 4:00 *Lab:*
Extracting genetic data for analysis and using extracted data
Erin Ware

THURSDAY, June 21

8:00 - 8:30 Light breakfast and coffee served

8:30 - 9:00 Recap of the previous day and questions

9:00 - 10:00 *Examining the Dynamic Gene: Epigenetics*
Kelly Bakulski

10:00 - 10:30 *Online genomic resources*
Colter Mitchell

10:30 - 10:45 Break

10:45 - 11:30 *Constructing Polygenic Scores*
Ben Domingue, Stanford University

11:30 - 12:00 *Conducting Research Using Polygenic Scores*
Ben Domingue, Stanford University

12:00 - 1:00 Lunch on own

1:00 - 4:00 *Lab:*
Constructing Polygenic Scores
Looking at Epigenetic data
Erin Ware and Kelly Bakulski

5:00 *Social Event at the Pretzel Bell, Captain's Room, Main St Ann Arbor*

FRIDAY, June 22

8:00 - 8:30 Light breakfast and coffee served

8:30 - 9:00 Recap of the previous day and questions

9:00 - 9:45 *Collaborating – working with labs and consortia and finding a collaborator*
Jessica Faul

9:45 - 10:15 *Data Sources – HRS/HRS Sister Studies, AddHealth, Fragile Families, UKBiobank, MESA*

10:15 - 10:30 Break

10:30 - 12:00 *Student Presentations I*

12:00 - 1:00 Lunch

1:00 - 3:00 *Student Presentations II*

3:00 - 3:15 Break

3:15 - 3:45 *Pitching your ideas and publishing your work - How to justify your work in a grant application, common review complaints, journals and funding*
Ethics
Faculty Panel

3:45 - 4:00 Final Remarks and Evaluation of Course