Genomics for Social Scientists
Epigenetics
NATIONAL INSTITUTE ON AGING

Agenda August 2022

Dates: August 8 - 11, 2022
Location: Virtual!

MONDAY, August 8th

Topics covered in video or live lectures

- Motivation for epigenetics in social and behavioral research
- Biology of epigenetics
  - Overview, DNA modifications
  - Histone modifications, regulatory RNA, cells and tissues
  - Timing, genes and the environment
- Strategies for collection and measurement of DNA methylation

Office Hours: 2:00 -2:30 PM (ET)

Lab 1: 2:30 PM – 5:00 PM (ET)

- RStudio Cloud info
- Introduction to R
- Importing/exploring the data

TUESDAY, August 9th

Lab 1 Help Desk: 9:30 AM -11:30 AM (ET)

Office Hours: 11:00 AM -12:00 PM (ET)

Topics covered in video or live lectures

- DNA methylation quality control I
- Consortia and studies with epigenetic data (Live! lecture during discussion)
- Online resources for epigenetic data and analyses

Office Hours: 2:00 -2:30 PM (ET)

Lab 2: 2:30 PM – 5:00 PM (ET)

- Intensity analysis
- Bisulfite quality
- Hybridization quality
- Detection p
- Red/green probe quality

- Cross-reactive probes
- Gap probe identification

WEDNESDAY, August 10th

Lab 2 Help Desk: 9:30 AM -11:30 AM (ET)

Office Hours: 11:00 AM -12:00 PM (ET)

Topics covered in video or live lectures

- Fundamental epigenetic analyses
- Data reduction in epigenetic data
- Data reduction in epigenetic data - Clocks (Live! lecture during discussion)
- Genetics and methylation

Office Hours: 2:00 -2:30 PM (ET)

Lab 3: 2:30 PM – 5:00 PM (ET)

- Background Correction
- Sample normalization (not recommended)
- Contamination checks
- Sex and Ancestry checks
- Batch examination and adjustments
- Cell type estimation

THURSDAY, August 11th

Lab 3 Help Desk: 9:30 AM -11:30 AM (ET)

Office Hours: 11:00 AM -12:00 PM (ET)

Topics covered in video or live lectures

- Special analysis topics in epigenetics (Live! Lecture during discussion)
- Next steps (Live! lecture during discussion)

Office Hours: 2:00 -2:30 PM (ET)

Lab 4: 2:30 PM – 5:00 PM (ET)

- Epigenetic clocks
- Global analysis
- Single site analysis, EWAS
- DMR
- Pathway analysis
- Data visualization

- meQTL
- Finding code/pipelines online
- Finding data online

FRIDAY, August 12th

Lab 4 Help Desk: 9:30 AM -11:30 AM (ET)

Genomics for Social Scientists
Epigenetics
NATIONAL INSTITUTE ON AGING

Agenda August 2021

Dates: August 9-12, 2021
Location: Virtual!

MONDAY, August 9th

Topics covered in video or live lectures

- Motivation for epigenetics in social and behavioral research
- Biology of epigenetics
  - Overview, DNA modifications
  - Histone modifications, regulatory RNA, cells and tissues
  - Timing, genes and the environment
- Strategies for collection and measurement of DNA methylation

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- Gap probe identification

WEDNESDAY, August 11th

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- Data visualization

- meQTL
- Finding code/pipelines online
- Finding data online

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Lab 4 Help Desk: 9:30 AM -11:30 AM (ET)

Genomics for Social Scientists
Epigenetics
NATIONAL INSTITUTE ON AGING
NIH National Institute on Aging

Agenda January 2021

Dates: January 11-14, 2021
Location: Virtual!

MONDAY, January 11th

Topics covered in video or live lectures

- Motivation for epigenetics in social and behavioral research
- Biology of epigenetics
  - Overview, DNA modifications
  - Histone modifications, regulatory RNA, cells and tissues
  - Timing, genes and the environment
- Strategies for collection and measurement of DNA methylation

Lab 1:

2:30 PM – 5:00 PM (EST)

- RStudio Cloud info
- Introduction to R
- Importing/exploring the data

TUESDAY, January 12th

Topics covered in video or live lectures

- DNA methylation quality control I
- Consortia and studies with epigenetic data
- Online resources for epigenetic data and analyses

Lab 2:

2:30 PM – 5:00 PM (EST)

- Intensity analysis
- Bisulfite quality
- Hybridization quality
- Detection p
- Red/green probe quality
- Cross-reactive probes
- Gap probe identification

WEDNESDAY, January 13th

Topics covered in video or live lectures

- Fundamental epigenetic analyses
- Data reduction in epigenetic data
- Data reduction in epigenetic data - Clocks (Live! lecture during discussion)
- Genetics and methylation

Lab 3:

2:30 PM – 5:00 PM (EST)

- Background Correction
- Sample normalization (not recommended)
- Contamination checks
- Sex and Ancestry checks
- Batch examination and adjustments
- Cell type estimation

THURSDAY, January 14th

Topics covered in video or live lectures

- Special analysis topics in epigenetics
- Next steps (Live! lecture during discussion)

Lab 4:

2:30 PM – 5:00 PM (EST)

- Epigenetic clocks
- Global analysis
- Single site analysis, EWAS
- DMR
- Pathway analysis
- Data visualization
- meQTL
- Finding code/pipelines online
- Finding data online