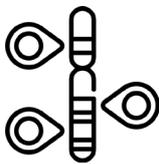


# Genetics & Genomics Winter School

June 24 - 28, 2024 | Brisbane, Australia

## Statistical and Computational Methods



### Statistical Genomics 1 Genetic Mapping

Dr Kathryn Kemper

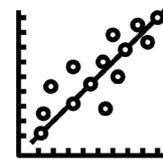
- Genome-wide association study (GWAS)
- Data processing & quality control
- Resources & meta-analysis



### Statistical Genomics 2 Heritability Estimation

A/P Loic Yengo

- Concepts, methods & implications
- Estimation using GWAS data
- Genomic REML
- Genomic partitioning analysis



### Statistical Genomics 3 Polygenic Prediction

Dr Jian Zeng

- Polygenic risk score
- Utilities, opportunities & limitations
- Methodology & analytical pipeline
- Bayesian methods



### Cellular Transcriptomics

A/P Quan Nguyen

- Single-cell & spatial transcriptomics
- Cell type analysis
- Machine learning for imaging and sequencing data



### Genetic Epidemiology

Dr Daniel Hwang

- Causal inference using genetic data
- Mendelian randomization (MR)
- Structural equation modelling (SEM)



### Systems Genomics & Pharmacogenomics

Dr Sonia Shah

- Transcriptome-wide QTL analysis
- Integrating GWAS with omics data
- Prediction of drug effects
- Connectivity Map for therapeutics



On-site lectures + hands-on practical exercises

Construct your own week-long course

6 modules offered, each 1.5 days, from 9am to 4pm

Each class size limited to 40 participants

Social events & drop-in session for lab tour

Scholarships available for undergraduate students

Registration opens on 2<sup>nd</sup> April