**UQ IMB Genetics and Genomics Winter School 2024**

**Timetable for Module 3 – Statistical Genomics 2 – Heritability Estimation**

Lecturer: A/Prof Loic Yengo

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| **Tuesday PM: Introduction to Quantitative Genetics** |
| 1-2 pm | **Part 1**Discussion around the intuition behind the concept of variance. Formal introduction to Quantitative Genetics (Part 1) + Practical 1 (Single locus model). |
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| 2.15-3 pm | **Part 2**Methods for estimating heritability using individual-level data (based on linear mixed models and methods of moments) + Practical 2 (within-family variance + twin model). |
|  | *Software: R, R packages: base* |
| 3.15-4 pm | **Part 3**Practical 3 (within-family variance + twin model). |
|  | *Software: PLINK, GCTA* |

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| **Wednesday AM: Heritability of disease (and binary traits)** |
| 9-10 am | Liability threshold model for disease (Falconer 1965)  |
| 10:15-11:15pm | Practical 4: heritability of binary traits*Software: PLINK, GCTA & R* |
| **Thursday AM: Estimation of heritability from GWAS summary statistics** |
| 9-9:45 am | Introduction to LD score regression models*Software: PLINK* |
| 10 -11 am | Practical 5:Estimation of heritability and genetic correlation between different GWAS of waist-to-hip ratio.*Software: LDSC, R* |
| 11.15-12.00 am | Seminar and concluding remarks. |