SISG Module 13
Association Mapping: GWAS and Sequencing Data

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Summer Institute in Statistical Genetics (SISG)
July 2015

Seattle, Washington

Introduction: Course Aims

This is a course on statistical methods and software for genetic association studies of complex traits. We aim to cover:

- ▶ Case-Control Association Testing
- ▶ Genetic Association Testing with Quantitative Traits
- ▶ Gene and Pathway Level Analysis
- ▶ Population Structure/Ancestry Inference
- ▶ Genetic Association Testing in Samples with Structure
- ▶ Introduction to Rare Variant Analysis and Collapsing Tests
- ▶ Supervised Burden Tests and Variance Component Test for Rare Variants
- ▶ Omnibus Tests, Weighting, Design Considerations
- ▶ Gene Environment Interactions, Meta Analysis, Emerging Issues

Introduction: Resources

Importantly, the class site is:

http://faculty.washington.edu/tathornt/SISG2015.html

Contains (or will contain);

- ▶ PDF copies of slides (in color)
- ▶ Datasets needed for exercises
- ▶ Exercises for you to try
- ▶ Our solutions to exercises (later!)
- ▶ Links to software packages

Introduction: Course Structure

- ▶ 10 sessions over 2.5 days
- ▶ What to expect in a typical session;
    - ▶ 45 mins teaching/lecture
    - ▶ 30 mins hands-on exercises
    - ▶ 15 mins summary, discussion