

# Designing Geneticists

**Study design issues in  
population-based genetics and  
genomics research**

# Introduction

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# Motivation for the Session

- Population-based designs being used more frequently to:
  - Answer genetics questions
  - Study the relationship among genes and between genetic and environmental factors
- Study design
  - Critical aspect of a study
  - Driven by the goals of the study
- Genetics community
  - Less likely to have received education in design principles for population-based study designs

# Objectives of the Session

## Better understand:

- » Design principles of case-control and cohort studies  
Moyses Szklo
- » Difference between internal validity and external validity, how to decide the importance of each when designing a study, and how study design affects validity  
Robert Hoover
- » Main types of bias, how to avoid them, and how to look for them in a study  
Teri Manolio
- » Special challenges of genome-wide association studies  
Ellen Wijsman