

Syllabus for COGS 178: Genes, Brains, and Behavior
Spr 2017
Tu-Thur: 3:30 – 4:50
Instructor: Terry Jernigan

This course will describe the evidence for an association between small common differences in our genomes and differences in our attributes, or phenotypes – focusing on brain and behavioral phenotypes. The course is a quick tour through the rapid advances made in the methods available for asking questions about genotype to phenotype mapping, and how the results obtained with these different methods are changing the way we think about this mapping and ourselves.

Week 1

Apr 4 Course Intro & Pretest
Apr 6 Tutorial: Basic Genetics

Week 2

Apr 11 Tutorial: Basic Genetics
Apr 13 Twin Methods and Twin Studies of Height and Brain Phenotypes

Week 3

Apr 18 Twin Methods and Twin Studies of Behavior
Apr 20 Twin Methods and Twin Studies of Behavior

Week 4

Apr 25 Candidate Gene Studies of Behavior
Apr 27 Genome Wide Association Studies and the “curse of dimensionality”

Week 5

May 2 GWAS of Height and Brain
May 4 GWAS of Behavioral Phenotypes

Week 6

May 9 Midterm
May 11 Genome Wide Complex Trait Analysis

Week 7

May 16 GWCTA of height and brain
May 18 GWCTA of behavioral phenotypes

Week 8

May 23 Constructing and Patterning the Brain
May 25 Discussion: Twin studies in the era of GWAS

Week 9

May 30 Discussion: Gene-Environment Interactions and Correlations
Jun 1 Discussion: Precision Medicine: All of Us

Week 10

Jun 6 Discussion & Posttest: Precision Education: No Child Left Behind
Jun 8 Discussion, Review for Final, Posttest Feedback, Course Evaluation

Final: Jun 12 3pm-6pm