The Genetic Basis of Behavior
Biological Bases of Behavior 207
Spring Semester, 2015: Monday 2:00-5:00 PM
Location: FAGN 216

Summary:
This course will be a comprehensive survey of the field of Behavioral Genetics, beginning with a historical perspective, basic concepts in molecular and quantitative genetics, and a review of current knowledge and future directions in the field. Genomic approaches will be emphasized, and both typical behavior and psychiatric disorders will be covered. Selected current research topics will be presented.

Course Director:
Arlen Price, arlen@exchange.upenn.edu
Office Hours: Before or after class and by arrangement

Class Times: Each session is divided into 2 sections, 2:00-3:20 and 3:30-4:50
Break and 2nd session times are approximate.

Text: None required. Background reading: Robert Plomin et al., Behavioral Genetics, Sixth Edition, 2012 (or any earlier edition if available). Other background papers will be posted during the course. Papers will include up to date reviews of topics listed in the syllabus and will be available on CANVAS. For example:

Special Research Topics and Guest Lectures in Course:
Arlen Price, Obesity
Dr. Wade Berrettini, Genetics of Addictions
Dr. Chris Pierce, Epigenetics of Addictions
Dr. Dani Reed, Taste
Dr. Joel Mainland, Olfaction
Others TBD

Lecture slides will be available via CANVAS or email by class time.

Syllabus:

January
14 Introduction and History
14 Mendelian/Transmission Genetics
26 Heritability: Family, twin and adoption models
26 Genetic Syndromes and Major Gene Mutations

February
2 Gene identification through linkage and association
2 The Genomics Era: The nature of genetic variation
9 Genes linked to behavior
9 Genes associated with behavior
9 'Missing heritability'
9 Contributions of common and rare variability to behavior
9 Review
16 Class Cancelled due to Illness

(Note: Exam results will be available by the 20th, the last day to drop.)

23 Exam 1: Basic Behavioral Genetics

March

2 Introduction to Epigenetics
2 Epigenetics of Suicide
9 SPRING BREAK
16 Dr. Wade Berrettini, Genetics of Addictions
16 Dr. Chris Pierce, Epigenetic effects associated with addictions
23 Price, genetics and epigenetics of obesity and review
30 Exam 2: Genes and environment

April

6 Price: Epigenetics of Autism and Schizophrenia
13 Danielle Reed, Taste
13 Joel Mainland, Olfaction
20 Price: Transgenerational Epigenetic Inheritance
27 Review and Discussion

May

11 Final exam: 9:00-11:00 AM

Evaluation:

Basic Genetics	30%
Genes and Environment	30%
Final Exam: (Mostly New Material but Comprehensive)	40%

The first two exams will include questions on specific course content with short answers, a few words to a short paragraph, and some short essay questions covering broader concepts. The final exam will include similar questions, with more short-essay like questions on material covered under current research topics.