

Advanced Genetic Epidemiology Statistical Workshop Provisional Program: Applications to Drug Abuse

Day	Topic	Application	Date
Monday	Statistical Genetics & Genomics		October 23
9:00- 9:30	Statistical Genetics of Substance Use (SU)	Questions Answered and Questions Posed	Kendler
9:30-10:30	Genetic Analysis of Complex Traits Intro	How can we model the relationships in very large groups?	Medland
11:00-12:30	Analyses of Genetic Relationship Matrices in OpenMx	Can I fit all the usual BG models with GRMs?	Kirkpatrick
1:30- 3:00	SNP-based Heritability Estimating -Alternative Methods	Does heritability estimated from SNP's match that from twins?	Ben Neale
3:30- 5:00	Polygenic Risk Scores Prediction Methods	Do the combined effects of multiple genes predict SU?	Medland
Tuesday	Multivariate Genetic Modeling		October 24
8:00- 9:00	SNP-based Genetic Correlation	How to use SNPs to test whether genes affect multiple traits?	Ben Neale
9:00-10:30	Review Multivariate Genetic Analysis in OpenMx	Do the same or different factors affects different forms of SU?	Maes
11:00-12:30	Genotype x Environment Correlation & Interaction	Is role of genes the same in all environments?	Verhulst
1:30- 3:00	Measurement & Non-normal Distributions	Do DSM criteria measure different people with the same ruler?	M Neale
3:30- 5:00	MultiLevel Behavior Genetic Models	How to handle clustering from site or neighborhood in twin data?	Hunter
Wednesday	Statistical & Optimization Issues		October 25
8:00- 9:00	Review Optimization	How are parameters estimated?	Brick
9:00-10:30	Joint Ordinal & Continuous Data Analysis WLS	How do I analyze continuous and ordinal traits simultaneously?	Pritikin/ Brick
11:00-12:30	Power, Boundary & Confidence Interval Issues	How do I convince funding agencies to support my research?	Pritikin
1:30- 3:00	Bootstrap, Jackknife & Permutation	How accurate are my estimates? Are they affected by outliers?	Kirkpatrick
3:30- 5:00	iFACE & Intra-Person Dynamics	How to build a model of twins with time-varying phenotypes?	Hunter
Thursday	Genes, Environment & Development		October 26
8:00- 9:00	Review Autoregressive & Latent Growth Models	Does SU use at one time affects later SU?	Verhulst
9:00-10:30	Multivariate Latent Growth Curve & Dual Change Score	What factors contribute to the trajectories of SU?	Gillespie
11:00-12:30	Growth Mixture Modeling, Regime Switching	Do people jump groups or change trajectories?	M Neale
1:30- 3:00	Ecological Momentary Assessment Modeling	What do I do with very long time series data?	Brick/ Rappaport
3:30- 5:00	Dynamical Systems Models	Is there a good mathematical model of SU behavior?	Boker
Friday	Causal Modeling		October 27
8:00- 9:00	Review Direction of Causation	Does cannabis use cause depression or vice versa?	Neale/ Minica
9:00-10:30	Mendelian Randomization & Direction of Causation	Do genetic variants help to sort out direction of causation?	Minica/ Neale
11:00-12:30	GW-SEM Modeling -Twin Association Methods	Can we estimate both measured and latent genetic variance?	Verhulst
1:30- 3:00	Epigenetics / Methylation	How are environmental exposures coded in our biology?	York
3:30- 5:00	Open Science/ Big Data	How do we improve reproducibility & maximize scientific output?	York & Neale

Common Schedule	
8:00- 9:00	Optional Review (except Monday)
10:30-11:00	Coffee/Tea Break
12:30- 1:30	Lunch Break
3:00- 3:30	Coffee/Tea Break
Special Events	
5:30- 7:30	Monday Reception in Biotech I Atrium
6:00-	Friday Party at 1910 Texas Ave
Faculty	
Co-Directors Faculty	<p>Michael C. Neale, Professor & Hermine H. Maes, Associate Professor, Virginia Institute for Psychiatric and Behavioral Genetics</p> <p>Steve Boker, Professor, Department of Psychology, University of Virginia</p> <p>Tim Brick, Assistant Professor, Human Development and Family Studies, Penn State University</p> <p>Nathan A. Gillespie, Associate Professor, Department of Psychiatry, Virginia Institute for Psychiatric and Behavioral Genetics</p> <p>Mike Hunter, Assistant Professor, Department of Psychology, University of Oklahoma Health Sciences Center</p> <p>Kenneth S. Kendler, Professor, Department of Psychiatry & Director, Virginia Institute for Psychiatric and Behavioral Genetics</p> <p>Robert Kirkpatrick, Postdoctoral Fellow, NIDA R25: Research Education in Statistical Genetics of Substance Abuse</p> <p>Sarah Medland, Associate Professor, Berghofer Queensland Institute for Medical Research</p> <p>Camelia Minica, Postdoctoral Fellow, Department of Biological Psychology, VU Amsterdam</p> <p>Benjamin M. Neale, Associate Professor, Broad Institute</p> <p>Joshua Pritikin, Postdoctoral Fellow, NIDA R25: Research Education in Statistical Genetics of Substance Abuse</p> <p>Lance Rappaport, Postdoctoral Fellow, NIMH T32: Research Training in Psychiatric and Statistical Genetics</p> <p>Brad Verhulst, Assistant Professor, Michigan State University</p> <p>Tim York, Assistant Professor, Department of Human and Molecular Genetics, Virginia Institute for Psychiatric and Behavioral Genetics</p>
IT Support Admin Support	<p>Joey Noble, IT Virginia Institute for Psychiatric and Behavioral Genetics</p> <p>Valarie Carter, Rena Edwards, Virginia Institute for Psychiatric and Behavioral Genetics</p>
Location	
	<p>Virginia Institute for Psychiatric and Behavioral Genetics, Virginia Commonwealth University</p> <p>Jackson Center Training Room</p>
Sponsor	
	<p>National Institute on Drug Abuse</p> <p>Office of Behavioral and Social Science Research</p>