Analicia Howard

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EDUCATION:

University of Colorado- Boulder 2027 (expected)
Behavioral, Psychiatric, and Statistical Genetics

University of Colorado- Boulder 2024
M.A. in Psychology

University of Puget Sound 2016
B.S. in Biochemistry

TEACHING EXPERIENCE:

Teaching Assistant, Psychology 3000: Research Methods in Psychology 2022 and 2023
University of Colorado, Boulder

Teaching Assistant, Psychology 3102: Behavioral Genetics 2023 and 2024
University of Colorado, Boulder

Guest Lecturer for Psychology 3102: Behavioral Genetics 2023 and 2024
University of Colorado, Boulder

RESEARCH EXPERIENCE:

Predoctoral Student, University of Colorado Boulder 2022-present
Institute for Behavioral Genetics

- Utilizing multivariate genomic and advanced statistical methods to understand the behavioral, genetic, and environmental risk and protective factors that contribute to human disease.
- Particular focus in psychiatric genetics and risk factors for psychopathology in adolescence
- Centered on personality, temperament, and cognitive factors (e.g., executive function and reward sensitivity) that confer transdiagnostic risk for psychiatric disorders.

Computational Health Informatics Program Internship 2026-present
Boston Children's Hospital and Harvard Medical School

- Under advisement from Dr. Benjamin Strober
- Developing a multi-causal variant colocalization method to better characterize overlapping signal between GWAS and eQTL variants

Community Liaison, University of Colorado Boulder 2024-present
COlorado MUltiethNIc study on Development and Aging Dynamics (COMUNIDAD)

Senior Clinical Research Assistant, Oregon Health and Sciences University (OHSU) 2019-2022

Adolescent Brain and Cognitive Development (ABCD) Study
Developmental Brain Imaging Lab

- Genetics Workgroup Trainee Member
- Responsible for the training of new staff members and of continuing training of current staff members
- MRI scan operator working to run T1 and T2-weighted, DTI, and BOLD sequence fMRI scans
- Phlebotomy-trained to obtain blood samples from participants for epigenetic DNA analysis as well as comprehensive blood cell counts
- Administration of neuropsychological assessments and neurocognitive batteries for adolescents
- Collection and processing of biological samples for analysis: including saliva for DNA and hormonal analysis, as well as urine, hair, and teeth for analysis of substance use exposure
- Image analysis and abstraction through AFNI

Research Assistant II, OHSU 2017-2019
Developmental Brain Imaging Lab

- Administration of neuropsychological assessments and neurocognitive batteries for adolescents
- Collection and processing of biological samples for analysis: including saliva for DNA and hormonal analysis, as well as urine, hair, and teeth for analysis of substance use exposure

Research and Academics Volunteer, OHSU 2017
Developmental Brain Imaging Lab

- MRI scan assistant working to run E-Prime based cognitive and behavioral assessments for adolescents during fMRI scans for ABCD and At-Risk studies in the Developmental Brain Imaging Lab

Research and Academics Volunteer, OHSU 2016-2017
Spina Bifida Clinic as part of the National Spina Bifida Registry

- Assisted with IRB continuing review and new document approval process through OHSUs eIRB system
- Assisted with data collection, survey administration, and data entry for the purpose of tracking longitudinal outcomes on the CDC funded Spina Bifida Research Study
- Assisted with implementation of a sub-study tracking urology-related outcomes in Spina Bifida population

Student Researcher, Neuroscience Methods Course, University of Puget Sound 2016

- How does embryonic stress in *Drosophila melanogaster* affect the concentration of dopaminergic neurons in 2nd instar larvae?
  - Proposed dissection of dozens of larval brains and staining for dopaminergic receptors using tyrosine-hydroxylase primary antibodies and other immunohistochemical techniques
  - Proposed quantification of the number of receptors in the larval brains under a fluorescent microscope

Summer Research Grant Recipient, University of Puget Sound 2014

- Mapping the pathway through which Bisphenol-A disrupts the Gonadotropin releasing Hormone neurons in the teleost fish *Oryzias latipes.*
  - Proposed identification of a possible thyroid- hormone receptor pathway through which BPA disrupts the GnRH neurons
  - Proposed analysis of results of 50+ fish via larval brain fixation, cryostat sectioning, and through observation under a fluorescent microscope

PUBLICATIONS, POSTERS, and PRESENTATIONS:

Howard A.K., Kaiser R.H. and Friedman N.P., 2026 Multiple dimensions of reward-sensitivity and cognitive control relate to psychopathology: an exploratory structural equation modeling approach. *Frontiers in Psychology*. DOI:10.3389/fpsyg.2026.1823262

Howard, A.K., Gustavson, D.E., Friedman, N.P., 2026. Relationships Between Polygenic Scores for Psychopathology and Observed Psychopathology are Mediated by Cognitive Control and Reward Sensitivity Pathways: Insights from the ABCD Study. *Biological Psychiatry Global Open Science*.

Howard, A.K., Rader, L., & Friedman, N. P. (June, 2026). Is Reward Sensitivity Uniquely Predictive of Substance Use Beyond Relations to Externalizing in Adolescence? Poster presentation at the 56th annual meeting of the Behavioral Genetics Association, Amsterdam, Netherlands.

Howard, A.K., Gustavson, D. E., & Friedman, N. P. (June, 2025). Genetic Links Between Separable Measures of Cognitive Control and Externalizing Psychopathology: Insights from the ABCD Study. Poster presentation at the 55th annual meeting of the Behavioral Genetics Association, Atlanta, GA.

Howard, A. K., Gustavson, D. E., & Friedman, N. P. (June, 2024). Adolescent reward and cognitive control constructs independently relate to polygenic scores for adult psychopathology. Talk presented at the 54th annual meeting of the Behavior Genetics Association, London, England.

Howard, A.K., Jones, S.A., Mooney, M.A., Nagel, B.J., Nigg, J.T. (April, 2022). Polygenic Risk Score for Major Depressive Disorder Predicts Depression Symptomology During Adolescence. Talk presented at the *Society of Biological Psychiatry* annual meeting in New Orleans, LA, USA.

PROFESSIONAL INVOLVEMNT AND MEMBERSHIPS:

Member of American Society for Human Genetics	2025-present
Associate Member of Behavioral Genetics Association	2024- present
Peer Mentor in the Graduate Peer Mentoring Program	2023-2026
Psychology and Neuroscience Diversity, Equity, and Inclusion Committee	2023-present
Institute of Behavioral Genetics Diversity, Equity and Inclusion Committee	2023- 2025
International Scholar and Cultural Exchange Program Liaison	2023-2024
ABCD Study Genetics Workgroup	2021-2024

TRAINING:

International Statistical Genetics Workshop Hosted by the Institute for Behavioral Genetics	2024 and 2025
ABCD Reproducible Neuroimaging Course Hosted by Florida International University	2021

Epigenetics Symposium 2020
Oregon Health and Sciences University

Short Course on the Genetics of Addiction 2019
Jackson Laboratories

HONORS AND AWARDS:

Public and Community Engaged Scholarship Grant- CU Boulder 2025

National Institute on Drug Abuse T32 Training Grant 2024-2026

Graduate and Professional Student Government Travel Award 2025

Travel award Behavioral Genetics Association Conference 2024-2026

CUB Travel Grant- CU Boulder 2024, 2026

CUB Diversity Fellowship- CU Boulder 2022

Travel award for Short Course in Genetics of Addiction 2019

PS Faculty Scholarship for academic achievement 2011- 2016

UEC grant for undergraduate research 2014

RELEVANT SKILLS AND LABORATORY TECHNIQUES:

- Programming and Bioinformatics Skills:
  - Experience in: R, Mplus, OpenMx, PRS-CS, Python, SPSS, Git, Docker, Linux Operating System, EPIC medical records system, AFNI, and E-prime
- Statistical analysis
  - Experience in: Structural equation modeling, Graph theory, Bayesian inference, linear mixed effects models, general additive mixed effects models, factor analysis, principal component analysis
- Neuroscience-related techniques:
  - Experience in: Histochemical staining, backfilling neurons, fluorescence microscopy, immunohistochemical staining, brain dissection and cryostat sectioning, T1 and T2-weighted, DTI, and BOLD sequence fMRI image acquisition
- Biology-related techniques
  - Experience in: PCR, western blot, SDS-PAGE, bright, dark, and phase contrast microscopy, gel electrophoresis, centrifugation, sterile cell culture, mutagenesis of yeast cultures, and plasmid purification