

Naomi P. Friedman

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Education

- 2002 – 2005 Postdoctoral Trainee (T32 HD007289) in Behavior Genetics
Institute for Behavioral Genetics, University of Colorado Boulder
Mentor: Dr. John Hewitt
- 1996 – 2002 Ph.D. (2002) and M.A. (1998) in Cognitive Psychology
University of Colorado Boulder
Advisor: Dr. Akira Miyake
- 1992 – 1996 B.A. in Psychology
University of Texas at Austin
Honor's Advisor: Dr. Philip Gough

Professional Positions

- August 2013 – present Assistant Professor
Department of Psychology and Neuroscience and Institute for
Behavioral Genetics, University of Colorado Boulder
- 2013 – present Faculty Fellow
Institute for Behavioral Genetics, University of Colorado Boulder
- 2016 – present Faculty Fellow
Institute for Cognitive Science, University of Colorado Boulder
- 2008 – 2013 Senior Research Associate
Institute for Behavioral Genetics, University of Colorado Boulder
- 2002 – 2008 Research Associate
Institute for Behavioral Genetics, University of Colorado Boulder

Honors, Awards, and Fellowships

- 1998 – 2001 National Science Foundation Graduate Research Fellowship
2000 University of Colorado Psychology Department Dossier Award
1998 University of Colorado Beverly Sears Dean's Small Grant
1996 (lifetime) Phi Beta Kappa Honor Society

1992 – 1996

National Merit Scholarship

Research Interests

Specifying the mechanisms (both neural and genetic) underlying individual differences in executive functions — high-level cognitive abilities that, through their influence on lower-level processes, enable individuals to regulate their thoughts and actions during goal-directed behavior — and their relations to everyday self-regulation as well as psychopathology. I use a variety of approaches, including twin studies, neuroimaging, and computational modeling.

Current research projects

- Twin fMRI imaging of executive functions, with a focus on the neural substrates of individual differences in performance.
- Relations of executive functions to self-regulation abilities and psychopathology, including whether executive functions account for shared variance across internalizing and externalizing psychopathologies.
- Relations between executive functions and impulsivity, including whether these two kinds of control have unique genetic influences and explain unique variance in psychopathology.
- Effects of substance use in adolescence and adulthood on cognitive abilities.

Grants

Active

U01 DA046413 (Vrieze, Friedman)	8/15/18 – 6/30/22	1.0 academic,
NIH/NIDA	\$690,406 (total costs 2018)	1.0 summer
Role: MPI		

A Twin Study of Adolescent Alcohol and Drug Use Development: Leveraging Intensive Longitudinal Assessments

This study will use smartphone sensors and weekly surveys to assess substance use, executive function, disinhibition, risk-taking, and social context on a quasi-continuous basis over the course of multiple years in a large sample during the transition from adolescence to young adulthood. The results will provide a fine-grained model of developmental change in key risk domains and their relationship to substance use.

R01 MH063207 (Friedman)	2/15/14 – 1/31/19	2.0 academic,
NIH/NIMH	\$680,152 (total costs 2018)	1.0 summer
Role: PI		

Neural Substrates of Executive Function: An fMRI Twin Study

This fMRI twin study (projected $N = 640$) will elucidate whether the activity of particular neural circuits are associated with individual differences in executive functions, assess the genetic and environmental etiologies of individual differences in these neural indices, and examine whether the identified neural circuits mediate the relations between executive functions and current symptoms of psychopathology.

R01 AG046938 (Reynolds/Wadsworth) Subcontract to Institute for Behavioral Genetics (Wadsworth) NIH/NIA Role: Co-I	6/01/15 – 2/28/20 \$1,488,219 (total costs 2018), \$787,150 (sub only direct)	0.9 academic, 1.0 summer
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Colorado Adoption/Twin Study of Lifespan Behavioral Development & Cognitive Aging
(CATSLife)

This study will elucidate developmental influences on cognitive and physical functioning during early adulthood as precursors of later cognitive change. It will conduct new assessments in two genetically informative studies of behavioral development, each with decades of previously collected cognitive and behavioral data spanning infancy to early adulthood.

U01 DA041120 (Luciana) Subcontract to Institute for Behavioral Genetics (Banich/Hewitt) NIH/NIDA Role: Co-I	9/30/15 – 05/31/20 \$4,881,800 (total costs 2018), \$356,435 (sub only direct)	0.9 academic, 0.3 summer
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ABCD-USA Consortium: Twin Research Project

The Twin Hub of the ABCD-USA Consortium includes the University of Minnesota (hub leader), Virginia Commonwealth University, Washington University, and the University of Colorado. The aim of the project is to prospectively determine neurodevelopmental (structural MRI and fMRI) and behavioral predictors and consequences of adolescent substance use in a representative community sample of 800 twin pairs and 700 singletons, contributing to the sample of 11,111 to be collected from 11 hubs across the ABCD-USA Consortium.

R01 HD078532 (Munakata) NIH/NICHHD Role: Co-I	2/01/17 – 1/31/22 \$309,289 (total costs 2018)	0.25 summer yrs 1 & 5, 0.5 summer yr 3
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Developing Inhibitory Control

This project investigates the mechanisms that support the development of inhibitory control, and their implications for targeted intervention, through experimental studies with children and tightly integrated computational modeling.

R01 DA046064 (Wager) NIH/NIDA Role: Co-I	4/15/18 – 1/31/23 \$680,545 (total costs 2018)	1.35 academic
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Brain and Genetic Predictors of Individual Differences in Pain and Placebo Analgesia

This project investigates brain mechanisms of placebo analgesia, combining neuroimaging, behavioral, and genetic approaches. We will use fMRI to characterize the heritability of placebo effects and their neural bases in twins, and use genome-wide association analyses in the ENIGMA consortium to identify genetic risk variants and polygenic risk scores for those brain regions genetically associated with placebo effects.

R01 DA042742 (Palmer) Subcontract to Institute for Behavioral Genetics (Friedman) NIH/NIDA	4/01/18 – 1/31/23 \$298,047 (total costs 2018) \$70,235 (sub only)	0.45 academic, 0.48 summer
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Role: Co-I, subcontract PI

Integrative Prioritization of Alcohol and Drug-Addiction Related Genetic Loci

This project seeks to overcome limitations observed in genome-wide association studies of alcohol and tobacco use and disorders (ATUDs) by using novel approaches and existing data to (1) localize genetic variants that comprise the additive genetic variance of ATUDs and (2) develop new technologies to enhance risk prediction for alcohol, tobacco, and related complex traits.

Completed

R01 AA023974 (Vrieze) NIH/NIAAA	9/01/14 – 8/30/18 (no-cost extension) \$1,638,910 (total costs)	0.5 calendar
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Role: Co-I

Social Media, Online Measures, and Substance Use Development in Adolescent Twins

This project integrates in-person clinical, cognitive, and environmental assessment, online longitudinal surveys of the same, geospatial position logging, and monitoring of online and social media behavior to evaluate how social media exposure may relate to substance use and dependence, how this relationship evolves during adolescence, or the etiological sources of individual differences in this relationship.

R21 MH102210 (Hankin) Subcontract to Institute for Behavioral Genetics (Friedman) NIH/NIMH	7/01/14 – 6/30/17 (no-cost extension) \$417,880 (total costs)	1.0 academic
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Role: Co-I, subcontract PI

Links Among Adolescent Executive Function, Effortful Control and Psychopathology

This project examined the extent to which executive function task performance and the temperament dimension of effortful control are overlapping or distinct constructs, and how they relate to adolescent psychopathology.

R01 HD068728 (Willcutt/Petrill) NIH/NICHD	4/15/11 – 1/31/17 (no-cost extension) \$2,968,730 (total costs)	1.2 academic
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Role: Co-I

Etiology and Neuropsychology of Math, Reading, ADHD, and their Covariation

This study administered measures of neuropsychological functioning within two large longitudinal twin studies to assess the genetic, environmental, and neuropsychological factors that lead to stability and change in reading disability, math disability, and attention-deficit/hyperactivity disorder, and the specific factors that lead to their frequent co-occurrence.

R01 MH063207 (Hewitt) 9/01/08 – 5/31/13 2.25 calendar
 NIH/NIMH \$1,873,084 (total costs)
 Role: Co-I

Executive Functions and Self-Regulation: A Twin Study

This study examined genetic and environmental contributions to stability and change in executive functions during the transition from adolescence to young adulthood, and their relations to multiple domains of self-regulation.

P50 MH079485 (Banich) 4/22/08 – 1/31/13 6.59 calendar
 NIH/NIMH \$8,712,888 (total costs
 center)
 Role: Co-I of Project 4 \$968,982 (total costs proj. 4)

IBSC: Determinants of Executive Function and Dysfunction: Project 4: Genetic Mechanisms of Executive Functions

This project developed biologically based computational models to explore hypotheses about specific genetic influences on individual differences in three correlated but separable executive functions.

BCS-0847872 (Ito) 7/15/09 – 6/30/12 1.0 calendar
 NSF \$789,339 (total costs)
 Role: Co-PI

Collaborative Research: Individual Differences in Executive Functions and Expressions of Racial Biases

This study examined the role of executive control in individual differences in the expression of racial biases. Participants from three universities completed an executive function battery and measures of racial bias, including explicit, implicit, and motivation measures.

R01 HD050346 (Rhee) 9/01/07 – 6/30/12 0.96 calendar
 NIH/NICHHD \$1,562,272 (total costs)
 Role: Co-I

Testing a Developmental Model of Conduct Problems

This study examined existing data from the Colorado Longitudinal Twin Study to test the developmental propensity model, which advances specific and testable hypotheses regarding the causes of conduct problems.

Friedman PI 3/01/07 – 2/29/09 0.6 calendar
 Henry Ford Hospital Sleep Center \$152,313 (total costs)
 Role: PI

Individual Differences in Sleep Problems

This project obtained information on insomnia and other sleep problems, as well as possibly related risk factors (e.g., stressful life events), in two large twin samples. The data enable analyses on the etiology of these problems and their relations to the risk factors, as well as other analyses using existing data for these samples.

R03 MH075814 (Friedman) 6/01/06 – 5/31/08 6.84 calendar
 NIH/NIMH \$146,849 (total costs)
 Role: PI

Longitudinal Effects of Sleep Problems on Cognition

This project examined developmental patterns of sleep problems from ages 4 to 17 years and their relations to cognitive abilities, including multiple executive functions.

R56 MH063207 (Hewitt) 6/01/06 – 5/31/08 6.84 calendar
 NIH/NIMH \$146,849 (total costs)
 Role: Co-I

Executive Functions and Self-Regulation: A Twin Study

Bridge funding for R01 MH063207.

Consultant/advisory board

Consultant on R01 AA023974 (Vrieze). *Social Media, Online Measures, and Substance Use Development in Adolescent Twins*. NIH/NIAAA. 9/25/14 – 8/30/17. \$1,703,861 (total costs).

Advisory Board Member (0.1 AY) on HRD-1251590 (Ito). *Broadening Women's Participation in STEM: The Critical Role of Belonging*. NSF. 9/01/13 – 8/31/18 (estimated). \$1,030,439 (total costs).

Sponsor/Mentor of funded research awards to post-docs/students

Co-mentor on K23 Clinical Training Grant (K23 AA026635) awarded to Jarrod Ellinson, Ph.D. *Common Mechanisms of the Microbiota-gut-brain axis in Alcohol Use Disorder and Depression: A Genetically Informed Investigation*. NIH/NIAAA. 9/27/18 – 8/31/23. \$183,946 (total costs 2018).

Publications

‡indicates senior authorship on last-authored papers
 underlined names are mentored graduate students and post-docs

Peer-Reviewed Journal Articles

1. ‡Gustavson, D. E., Panizzon, M. S., Reynolds, C. A., Corley, R. P., Hewitt, J. K., Lyons, M. J., Kremen, W. S., & **Friedman, N. P.** (in press). Integrating verbal fluency with executive functions: Evidence from twin studies in adolescence and middle age. *Journal of Experimental Psychology: General*. PMID: In Process.
2. Zabelina, D. L., **Friedman, N. P.**, & Andrews-Hanna, J. (2019). Unity and diversity of executive functions in creativity. *Consciousness and Cognition*, 68, 47-56. <https://doi.org/10.1016/j.concog.2018.12.005>. PMID: NIHMS1518272.

3. **Friedman, N. P.**, Rhee, S. H., Ross, J. M., Corley, R. P., & Hewitt, J. K. (in press). Genetic and environmental relations of executive functions to antisocial personality disorder symptoms and psychopathy. *International Journal of Psychophysiology*. (Special issue: *Inhibitory Control*). <https://doi.org/10.1016/j.ijpsycho.2018.12.007>. PMID: NIHMS1517920.
4. ‡Ellingson, J. M., Corley, R. P., Stallings, M. C., Hewitt, J. K. & **Friedman, N. P.** (in press). A prospective study of alcohol involvement and the dual-systems model of adolescent risk-taking during late adolescence and emerging adulthood. *Addiction*. <https://doi.org/10.1111/add.14489>. PMID: NIHMS996437.
5. †Reineberg, A. E., Gustavson, D. E., Benca, C.E., Banich, M. R., & **Friedman, N. P.** (2018). The relationship between resting state network connectivity and individual differences in executive function. *Frontiers in Psychology*, 9, 1600. (Special research topic: *Intra- and inter-individual variability of executive functions: Determinant and modulating factors in healthy and pathological conditions*). <https://doi.org/10.3389/fpsyg.2018.01600>. PMID: PMC6134071.
6. Smith Watts, A. K., **Friedman, N. P.**, Corley, R. P., Hewitt, J. K., Hink, L. K., Robinson, J. L., & Rhee, S. H. (in press). A longitudinal and multidimensional examination of the associations between temperament and self-restraint during toddlerhood. *Child Development*. <https://doi.org/10.1111/cdev.13173>. PMID: NIHMS990903.
7. Smolker, H. R., **Friedman, N. P.**, Hewitt, J. K., & Banich, M. T. (2018). Neuroanatomical correlates of unity and diversity model of executive functions in young adults. *Frontiers in Human Neuroscience*, 12, 283. (Special research topic: *Intra- and inter-individual variability of executive functions: Determinant and modulating factors in healthy and pathological conditions*). <https://doi.org/10.3389/fnhum.2018.00283>. PMID: PMC6064948.
8. Woodward, K. E., Boeldt, D. L., Corley, R. P., DiLalla, L., **Friedman, N. P.**, Hewitt, J. K., Mullineaux, P. Y., Robinson, J. L., & Rhee, S. H. (2018). Correlates of positive parenting behaviors. *Behavior Genetics*, 48, 283-297. <https://doi.org/10.1007/s10519-018-9906-2>. PMID: PMC6281807.
9. †Hatoum, A. S., Rhee, S. H., Corley, R. P., Hewitt, J. K., & **Friedman, N. P.** (2018). Etiology of stability and growth of internalizing and externalizing behavior problems across childhood and adolescence. *Behavior Genetics*, 48, 398-314. <https://doi.org/10.1007/s10519-018-9900-8>. PMID: PMC6026557.
10. †Smith, L. L., Banich, M. T., & **Friedman, N. P.** (in press). Individual differences in mixing costs relate to general executive functioning. *Journal of Experimental Psychology: Learning, Memory, and Cognition*. <https://dx.doi.org/10.1037/xlm0000613>. PMID: NIHMS962731.
11. **Friedman, N. P.**, du Pont, A., Corley, R. P., & Hewitt, J. K. (2018). Longitudinal relations between depressive symptoms and executive functions from adolescence to early adulthood: A twin study. *Clinical Psychological Science*, 6, 543-560. <https://doi.org/10.1177/2167702618766360>. PMID: PMC6150459.
12. Rhee, S. H., **Friedman, N. P.**, Smith Watts, A. K., Corley, R. P. Hewitt, J. K., Robinson, J., & Zahn-Waxler, C. (2018). The association between toddlerhood self-control and later

- externalizing problems. *Behavior Genetics*, 48, 125-134. <https://doi.org/10.1007/s10519-017-9886-7>. PMID: PMC5834389.
13. Gustavson, D. E., Panizzon, M. S., Elman, J. A., Franz, C. E., Reynolds, C. A., Jacobson, K. C., **Friedman, N. P.**, Xian, H., Toomey, R., Lyons, M. J., & Kremen, W. S. (2018). Stability of genetic and environmental influences on executive functions in midlife. *Psychology and Aging*, 33, 219-231. <https://dx.doi.org/10.1037/pag0000230>. PMID: PMC5905725.
 14. †Hatoum, A. S., Rhee, S. H., Corley, R. P., Hewitt, J. K., & **Friedman, N. P.** (2018). Do executive functions explain covariance between internalizing and externalizing behaviors? *Development and Psychopathology*, 30, 1371-1387. <https://dx.doi.org/10.1017/S0954579417001602>. PMID: PMC5955761.
 15. Gustavson, D. E., Panizzon, M. S., Franz, C. E., **Friedman, N. P.**, Reynolds, C. A., Jacobson, K. C., Xian, H., Lyons, M. J., & Kremen, W. S. (2018). Genetic and environmental architecture of executive functions in midlife. *Neuropsychology*, 32, 18-30. <https://dx.doi.org/10.1037/neu0000389>. PMID: PMC5814340.
 16. †du Pont, A., Rhee, S. H., Corley, R. P., Hewitt, J. K., & **Friedman, N. P.** (2018). Rumination and psychopathology: Are anger and depressive rumination differentially associated with internalizing and externalizing psychopathology? *Clinical Psychological Science*, 6, 18-31. <https://doi.org/10.1177/2167702617720747>. PMID: PMC5798899.
 17. †Gustavson, D. E., du Pont, A., Hatoum, A. S., Rhee, S. H., Kremen, W. S., Hewitt, J. K., & **Friedman, N. P.** (2017). Genetic and environmental associations between procrastination and internalizing/externalizing psychopathology. *Clinical Psychological Science*, 5, 798-815. <https://doi.org/10.1177/2167702617706084>. PMID: PMC5831260.
 18. †Gustavson, D. E., Stallings, M. C., Corley, R. P., Miyake, A., Hewitt, J. K., & **Friedman, N. P.** (2017). Executive functions and substance use: Relations in late adolescence and early adulthood. *Journal of Abnormal Psychology*, 126, 257-270. <https://dx.doi.org/10.1037/abn0000250>. PMID: PMC5305429.
 19. †Benca, C. E., Derringer, J. L., Corley, R. P., Young, S. E., Keller, M. C., Hewitt, J. K., & **Friedman, N. P.** (2017). Predicting cognitive executive functioning with polygenic risk scores for psychiatric disorders. *Behavior Genetics*, 47, 11-24. <https://dx.doi.org/10.1007/s10519-016-9814-2>. PMID: PMC5225028.
 20. **Friedman, N. P.**, & Miyake, A. (2017). Unity and diversity of executive functions: Individual differences as a window on cognitive structure. *Cortex*, 86, 186-204. <https://doi.org/10.1016/j.cortex.2016.04.023>. PMID: PMC5104682.
 21. **Friedman, N. P.** (2016). Research on individual differences in executive functions: Implications for the bilingual advantage hypothesis. *Linguistic Approaches to Bilingualism*, 6, 535-548. (Special Issue: Bilingualism and Executive Function.) <https://doi.org/10.1075/lab.15041.fri>. PMID: PMC5172591.
 22. Johnson, D. P., Rhee, S. H., **Friedman, N. P.**, Corley, R. P., Munn-Chernoff, M. A., Hewitt, J. K., & Whisman, M. A. (2016). A twin study examining rumination as a transdiagnostic risk factor for psychopathology. *Clinical Psychological Science*, 4, 971-987. <https://doi.org/10.1177/2167702616638825>. PMID: PMC5241110.

23. Rhee, S. H., **Friedman, N. P.**, Corley, R. P., Hewitt, J. K., Hink, L., Johnson, D. P., Smith Watts, A. K., Young, S. E., Robinson, J. L., Waldman, I. D., & Zahn-Waxler, C. (2016). An examination of the developmental propensity model of conduct problems. *Journal of Abnormal Psychology, 125*, 550-564. <https://dx.doi.org/10.1037/abn0000128>. PMID: PMC4850109.
24. **Friedman, N. P.**, Miyake, A., Altamirano, L. J., Corley, R. P., Young, S. E., Rhea, S. A., & Hewitt, J. K. (2016). Stability and change in executive function abilities from late adolescence to early adulthood: A longitudinal twin study. *Developmental Psychology, 52*, 326-340. <https://dx.doi.org/10.1037/dev0000075>. PMID: PMC4821683.
25. †Gustavson, D. E., Miyake, A., Hewitt, J. K., & **Friedman, N. P.** (2015). Understanding the cognitive and genetic underpinnings of procrastination: Evidence for shared genetic influences with goal management and executive function abilities. *Journal of Experimental Psychology: General, 144*, 1063-1079. <https://dx.doi.org/10.1037/dev0000075>. PMID: PMC4658242.
26. Ito, T. A., **Friedman, N. P.**, Bartholow, B. D., Correll, J., Altamirano, L. J., Loersch, C., & Miyake, A. (2015). Toward a comprehensive model of executive cognitive function in implicit racial bias. *Journal of Personality and Social Psychology, 108*, 187-218. <https://dx.doi.org/10.1037/a0038557>. PMID: PMC4354845.
27. Vargas, I., **Friedman, N. P.**, & Drake, C. L. (2015). Vulnerability to stress-related sleep disturbance and insomnia: Investigating the link with comorbid depressive symptoms. *Translational Issues in Psychological Science, 1*, 57-66. <https://dx.doi.org/10.1037/tps0000015>. PMID: PMC4406050.
28. Reineberg, A. E., Andrews-Hanna, J. R., Depue, B., **Friedman, N. P.**, & Banich, M. T. (2015). Resting-state networks predict individual differences in common and specific aspects of executive function. *NeuroImage, 104*, 69-78. <https://doi.org/10.1016/j.neuroimage.2014.09.045>. PMID: PMC4262251.
29. Drake, C., Vargas, I., Roth, T., & **Friedman, N. P.** (2015). Quantitative measures of nocturnal insomnia symptoms predict greater deficits across multiple daytime impairment domains. *Behavioral Sleep Medicine, 31*, 73-87. <https://doi.org/10.1080/15402002.2014.880345>. PMID: PMC4161662.
30. †Johnson, D. P., Whisman, M. A., Corley, R. P., Hewitt, J. K., & **Friedman, N. P.** (2014). Genetic and environmental influences on rumination and its covariation with depression. *Cognition and Emotion, 27*, 1270-1286. <https://doi.org/10.1080/02699931.2014.881325>. PMID: PMC4111768.
31. †Herd, S. A., O'Reilly, R. C., Hazy, T. E., Chatham, C. H., Brant, A. M., & **Friedman, N. P.** (2014). A neural network model of individual differences in task switching abilities. *Neuropsychologia, 62*, 375-389. (*Special Section on Executive Function and Cognitive Control.*) <https://doi.org/10.1016/j.neuropsychologia.2014.04.014>. PMID: PMC4167201.
32. Smith Watts, A. K., Patel, D., Corley, R. C., **Friedman, N. P.**, Hewitt, J. K., Robinson, J. L., & Rhee, S. H. (2014). Testing alternative hypotheses regarding the association between behavioral inhibition and language skills in toddlerhood. *Child Development, 85*, 1569-1585. <https://doi.org/10.1111/cdev.12219>. PMID: PMC4107130.

33. †Gustavson, D. E., Miyake, A., Hewitt, J. K., & **Friedman, N. P.** (2014). Genetic relations among procrastination, impulsivity, and goal-management ability: Implications for the evolutionary origin of procrastination. *Psychological Science*, *25*, 1178-1188. <https://doi.org/10.1177/0956797614526260>. PMID: PMC4185275.
34. Rhee, S. H., Boeldt, D. L., **Friedman, N. P.**, Corley, R. P., Hewitt, J. K., Young, S. E., Knafo, A., Robinson, J. L., Waldman, I. D., Van Hulle, C., & Zahn-Waxler, C. (2013). The role of language in concern and disregard for others in the first years of life. *Developmental Psychology*, *49*, 197-214. <https://dx.doi.org/10.1037/a0028318>. PMID: PMC3410981.
35. Rhee, S. H., **Friedman, N. P.**, Boeldt, D. L., Corley, R. P., Hewitt, J. K., Knafo, A., Lahey B. B., Robinson, J. L., Van Hulle, C., Waldman, I. D., Young, S. E., & Zahn-Waxler, C. (2013). Early concern and disregard for others as predictors of antisocial behavior. *Journal of Child Psychology and Psychiatry*, *54*, 157-166. <https://doi.org/10.1111/j.1469-7610.2012.02574.x>. PMID: PMC3547395.
36. Smith, A. K., Rhee, S. H., Corley, R. P., **Friedman, N. P.**, Hewitt, J. K., & Robinson, J. L. (2012). The magnitude of genetic and environmental influences on parental and observational measures of behavioral inhibition and shyness in toddlerhood. *Behavior Genetics*, *42*, 764-777. <https://dx.doi.org/10.1007/s10519-012-9551-0>. PMID: PMC3443291.
37. Miyake, A., & **Friedman, N. P.** (2012). The nature and organization of individual differences in executive functions: Four general conclusions. *Current Directions in Psychological Science*, *21*, 8-14. <https://doi.org/10.1177/0963721411429458>. PMID: PMC3388901.
38. Rhee, S. H., Corley, R. P., **Friedman, N. P.**, Hewitt, J. K., Hink, L. K., Johnson, D. P., Robinson, J. L., Smith, A. K., & Young, S. E. (2012). The etiology of observed negative emotionality from 14 to 24 months. *Frontiers in Genetics*, *3*, 1-10. <https://doi.org/10.3389/fgene.2012.00009>. PMID: PMC3270250.
39. Godinez, D. A., **Friedman, N. P.**, Rhee, S. H., Miyake, A., & Hewitt, J. K. (2012). Phenotypic, genetic and environmental structure of the Wisconsin Card Sorting Task errors. *Behavior Genetics*, *42*, 209-220. <https://doi.org/10.1007/s10519-011-9502-1>. PMID: PMC3392210.
40. †Chatham, C. H., Brant, A. M., Herd, S. A., Hazy, T. E., Miyake, A., O'Reilly, R. C., & **Friedman, N. P.** (2011). From the executive network to executive functions: A PBWM neural network model of the n-back task. *Journal of Cognitive Neuroscience*, *23*, 3598-3619. https://doi.org/10.1162/jocn_a_00047. PMID: PMC3269304.
41. Drake, C. L., **Friedman, N. P.**, Wright, K. P., Jr., & Roth, T. R. (2011). Sleep reactivity and insomnia: Genetic and environmental influences. *Sleep*, *34*, 1179-1188. <https://doi.org/10.5665/SLEEP.1234>. PMID: PMC3157659.
42. **Friedman, N. P.**, Miyake, A., Robinson, J. L., & Hewitt, J. K. (2011). Developmental trajectories in toddlers' self-restraint predict individual differences in executive functions 14 years later: A behavioral genetic analysis. *Developmental Psychology*, *47*, 1410-1430. <https://dx.doi.org/10.1037/a0023750>. PMID: PMC3168720.
43. **Friedman, N. P.**, Corley, R. P., Hewitt, J. K. & Wright, K. P. Jr. (2009). Individual

differences in childhood sleep problems predict later cognitive executive control. *Sleep*, 32, 323-333. <https://doi.org/10.5665/sleep/32.3.323>. PMID: PMC2647786.

44. Young, S. E., **Friedman, N. P.**, Miyake, A., Willcutt, E. G., Corley, R. P., Haberstick, B. C., & Hewitt, J. K. (2009). Behavioral disinhibition: Liability for externalizing spectrum disorders and its genetic and environmental relation to response inhibition across adolescence. *Journal of Abnormal Psychology*, 118, 117-130. <https://dx.doi.org/10.1037/a0014657>. PMID: PMC2775710.
45. **Friedman, N. P.**, Miyake, A., Young, S. E., DeFries, J. C., Corley, R. P., & Hewitt, J. K. (2008). Individual differences in executive functions are almost entirely genetic in origin. *Journal of Experimental Psychology: General*, 137, 201-225. <https://dx.doi.org/10.1037/0096-3445.137.2.201>. PMID: PMC2762790.
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47. Timberlake, D. S., Hopfer, C. J., Rhee, S. H., **Friedman, N. P.**, Haberstick, B. C., Lessem, J. M., & Hewitt, J. K. (2007). College attendance and its effect on drinking behaviors in a longitudinal study of adolescents. *Alcoholism: Clinical and Experimental Research*, 31, 1020-1030. <https://doi.org/10.1111/j.1530-0277.2007.00383.x>.
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49. **Friedman, N. P.**, & Miyake, A. (2005). Comparison of four scoring methods for the reading span test. *Behavior Research Methods*, 37, 581-590. <https://dx.doi.org/10.3758/BF03192728>.
50. **Friedman, N. P.**, & Miyake, A. (2004). The reading span test and its predictive power for reading comprehension ability. *Journal of Memory and Language*, 51, 136-158. <https://doi.org/10.1016/j.jml.2004.03.008>.
51. **Friedman, N. P.**, & Miyake, A. (2004). The relations among inhibition and interference control processes: A latent variable analysis. *Journal of Experimental Psychology: General*, 133, 101-135. <https://dx.doi.org/10.1037/0096-3445.133.1.101>.
52. Miyake, A., **Friedman, N. P.**, Rettinger, D. A., Shah, P., & Hegarty, M. (2001). How are visuospatial working memory, executive functioning, and spatial abilities related? A latent variable analysis. *Journal of Experimental Psychology: General*, 130, 621-640. <https://dx.doi.org/10.1037/0096-3445.130.4.621>.
53. Miyake, A., **Friedman, N. P.**, Emerson, M. J., Witzki, A. H., However, A., & Wager, T. D. (2000). The unity and diversity of executive functions and their contributions to complex "frontal lobe" tasks: A latent variable analysis. *Cognitive Psychology*, 41, 49-100. <https://doi.org/10.1006/cogp.1999.0734>.
54. Miyake, A., Emerson, M. J., & **Friedman, N. P.** (2000). Assessment of executive functions in clinical settings: Problems and recommendations. *Seminars in Speech and Language*, 21, 169-183. <https://dx.doi.org/10.1055/s-2000-7563>.

55. **Friedman, N. P.**, & Miyake, A. (2000). Differential roles for visuospatial and verbal working memory in situation model construction. *Journal of Experimental Psychology: General*, 129, 61-83. <https://dx.doi.org/10.1037/0096-3445.129.1.61>.
56. Miyake, A., Emerson, M. J., & **Friedman, N. P.** (1999). Good interactions are hard to find. *Behavioral and Brain Sciences*, 22, 108-109. Invited commentary on D. Caplan & G. S. Waters, Verbal working memory and sentence comprehension. *Behavioral and Brain Sciences*, 22, 77-126. <https://dx.doi.org/10.1017/S0140525X99371788>.

Book Chapters

1. Miyake, A., & **Friedman, N. P.** (1998). Individual differences in second language proficiency: Working memory as “language aptitude.” In A. F. Healy & L. E. Bourne, Jr. (Eds.), *Foreign language learning: Psycholinguistic studies on training and retention* (pp. 339-364). Mahwah, NJ: Erlbaum.

Manuscripts Submitted for Publication

1. †Hatoum, A. S., Reineberg, A. E., Smolker, H. R., Hewitt, J. K., & **Friedman, N. P.** (2018). *Whole-cortex mapping of common genetic influences on depression and social deficits*. Manuscript submitted for publication.
2. †du Pont, A., Rhee, S. H., Corley, R. P., Hewitt, J. K., & **Friedman, N. P.** (2018). *Are rumination and neuroticism genetically or environmentally distinct risk factors for psychopathology?* Manuscript submitted for publication.
3. **Friedman, N. P.**, Hatoum, A. S., Gustavson, D. E., Corley, R. P., Hewitt, J. K., & Young, S. E. (2018). *Executive functions and impulsivity are genetically distinct and independently predict psychopathology: Results from two adult twin studies*. Manuscript submitted for publication.
4. †Gustavson, D. E., Franz, C. E., Kremen, W. S., Carver, C. S., Corley, R. P., Hewitt, J. K., & **Friedman, N. P.** (2018). *Common genetic influences on impulsivity facets are related to goal management, psychopathology, and personality*. Manuscript submitted for publication.
5. Woodward, K. E., Corley, R. P., **Friedman, N. P.**, Hatoum, A. S., Hewitt, J. K., Huibregtse, B. M., Stallings, M. C., & Rhee, S. H. (2018). *Childhood language development and later alcohol use behaviors*. Manuscript submitted for publication.
6. †Reineberg, A. E., Hatoum, A. S., Hewitt, J. K., Banich, M. T., & **Friedman, N. P.** (2018). *Genetic and environmental influence on the human functional connectome*. Manuscript submitted for publication.
7. †du Pont, A., Rhee, S. H., Corley, R. P., Hewitt, J. K., & **Friedman, N. P.** (2018). *Rumination and executive functions: Understanding cognitive vulnerability for psychopathology*. Manuscript submitted for publication.
8. Rhee, S. H., Woodward, K., Corley, R. P., du Pont, A., **Friedman, N. P.**, Hewitt, J. K.,

Hink, L. K., Robinson, J., & Zahn-Waxler, C. (2018). *The association between toddlerhood empathy deficits and antisocial personality disorder and psychopathy in adulthood*. Manuscript submitted for publication.

9. Snyder, H. R., **Friedman, N. P.**, & Hankin, B. L. (2018). *Transdiagnostic mechanisms of psychopathology in youth: Executive functions, dependent stress, and rumination*. Manuscript submitted for publication.
10. Reynolds, C. A., Smolen, A., Corley, R. P., Munoz, E., **Friedman, N. P.**, Rhee, S. H., Stallings, M. C., DeFries, J. C., & Wadsworth, S. J. (2018). *APOE effects on cognition from childhood to adolescence*. Manuscript submitted for publication.

Manuscripts in Preparation

1. †Benca, C. E., Banich, M. T., Wager, T. D., Hewitt, J. K., & **Friedman, N. P.** (in preparation). *Predicting individual differences in executive functioning from functional magnetic resonance imaging data*.

Invited Talks

1. **Friedman, N. P.** (November, 2017). *Development and structure of executive function abilities*. Invited keynote lecture at the 21st Annual meeting of the Norwegian Neuropsychological Society, Stavanger, Norway.
2. **Friedman, N. P.** (December, 2015). *Development of individual differences in executive functions*. Invited talk presented at the "NIH Workshop on Behavioral and Psychological Phenotyping to Understand Differences in Physical Activity and Sedentary Behavior Affecting Weight Management," Bethesda, MD.
3. **Friedman, N. P.** (September, 2015). *Genetic influences on attentional control and working memory*. Invited talk presented at the "Attention and working memory: Commonalities and differences" symposium at the 19th European Society for Cognitive Psychology (ESCoP) conference, Paphos, Cyprus.
4. **Friedman, N. P.** (May, 2015). *What is (are) executive function(s)? Insights from individual differences research*. Invited talk presented at the "Workshop on Bilingualism and Executive Function: An Interdisciplinary Approach," New York, NY.
5. **Friedman, N. P.**, & Wright, K. P. Jr. (June, 2014). *Sleep and cognitive development*. Invited talk presented at the "Colorado Sleep and Circadian Research Symposia," Boulder, CO.
6. **Friedman, N. P.**, Miyake, A., Ito, T. A., Altamirano, L. J., Bartholow, B. D., & Correll, J. (June, 2011). *Individual differences in executive functions and expressions of racial biases*. Invited talk presented at the "Symposium on Implicit Racial Bias," Columbia, MO.

7. **Friedman, N. P.** (April, 2011). *The unity and diversity of executive functions: Genetic influences and correlates*. Invited talk to the Neuroscience Research Group at the University of Denver, Denver, CO.
8. **Friedman, N. P.** (March 2010). *Genetic influences on the unity and diversity of executive functions*. Invited UCLA seminar on phenomics and neurogenetics, Los Angeles, CA.
9. **Friedman, N. P.** (January 2010). *Genetic influences on the unity and diversity of executive functions*. Invited talk presented at the 2nd annual Conference on Executive Function, Boulder, CO.
10. **Friedman, N. P.**, Miyake, A., Young, S. E., Corley, R. P., Haberstick, B. C., Willcutt, E. G., DeFries, J. C., & Hewitt, J. K. (June 2009). Unity and diversity of executive functions in the longitudinal twin study. *Behavior Genetics*, 39, 652. Invited talk for the "Cognition and modularity" symposium at the 39th annual meeting of the Behavior Genetics Association, Minneapolis, MN.
11. Miyake, A., **Friedman, N. P.**, & Saito, S. (July 2003). *Individual differences in working memory span tasks: The role of attention in encoding and retrieval*. Invited talk presented at the "Variation in Working Memory" conference, Chicago, IL.

Conference Presentations

Presented

1. **Friedman, N. P.**, Rhee, S. H., Ross, J. M., Corley, R. P., & Hewitt, J. K. (June, 2018). Genetic and environmental relations of executive functions to antisocial personality symptoms and psychopathology. Talk presented at the 48th annual meeting of the Behavior Genetics Association, Boston, MA.
2. **Friedman, N. P.**, Gustavson, D. E., Corley, R. P., Stallings, M. C., & Hewitt, J. K. (June, 2015). Stability and change in the relations among executive functions and substance use and dependence from late adolescence to early adulthood. *Behavior Genetics*, 45, 656. Talk presented at the 45th annual meeting of the Behavior Genetics Association, San Diego, CA.
3. **Friedman, N. P.**, Rhee, S. H., Corley, R. P., Lessem, J. M., Stallings, M. C., Young, S. E., Wadsworth, S. J., & Hewitt, J. K. (June, 2014). Marijuana use and impaired cognitive ability. *Behavior Genetics*, 44, 659. Talk presented at the 44th annual meeting of the Behavior Genetics Association, Charlottesville, VA.
4. **Friedman, N. P.**, & Hewitt, J. K. (June, 2013). Do working memory span and updating tasks measure the same thing? A twin study. *Behavior Genetics*, 43, 518. Talk presented at the 43rd annual meeting of the Behavior Genetics Association, Marseille, France.
5. **Friedman, N. P.**, Altamirano, L. J., Miyake, A., Young, S. E., Corley, R. P., & Hewitt, J. K. (June, 2012). Etiology of stability and change in executive functions from late adolescence to adulthood. *Behavior Genetics*, 42, 934. Talk presented at the 42nd annual meeting of the Behavior Genetics Association, Edinburgh, Scotland.

6. **Friedman, N. P.**, Roth, T., Wright, K. P., & Drake, C. L. (June 2009). Genetic and environmental relations between insomnia and intrusive thinking: The contribution of sleep reactivity to stress. *Sleep*, 32, A255, Suppl. S. Talk presented at the 23rd annual meeting of the Associated Professional Sleep Societies, Seattle, WA.
7. **Friedman, N. P.**, Miyake, A., Young, S. E., Haberstick, B. C., Willcutt, E. G., & Hewitt, J. K. (January 2009). *Executive functions in the longitudinal twin study*. Poster presented at the 1st annual Conference on Executive Function, Boulder, CO.
8. **Friedman, N. P.**, Roth, T., Wright, K. P., & Drake, C. L. (June 2008). Sleep reactivity to stress and insomnia: Genetic and environmental contributions. *Sleep*, 31, A231. Talk presented at the 22nd annual meeting of the Associated Professional Sleep Societies, Baltimore, MA.
9. **Friedman, N. P.**, & Wright, K. P. (June 2008). Individual differences in childhood sleep problems predict cognitive executive functioning in late adolescence. *Sleep*, 31, A371. Talk presented at the 22nd annual meeting of the Associated Professional Sleep Societies, Baltimore, MA.
10. **Friedman, N. P.**, Miyake, A., Hewitt, J. K., Young, S. E., DeFries, J. C., & Corley, R. (November 2003). *The relations between specific and general executive function abilities, IQ, and working memory: A latent variable analysis*. Poster presented at the 42nd annual meeting of the Psychonomic Society, Vancouver, Canada.
11. **Friedman, N. P.**, & Miyake, A. (November 2002). *The relations among inhibition and interference control processes: A latent variable analysis*. Poster presented at the 41st annual meeting of the Psychonomic Society, Kansas City, MO.
12. Miyake, A., **Friedman, N. P.**, Emerson, M. J., Witzki, A. H., Howerter, A., & Wager, T. (June 1999). *The unity and diversity of executive functions: A latent variable approach*. Poster presented at the 11th annual meeting of the American Psychological Society, Denver, CO.
13. **Friedman, N. P.**, & Miyake, A. (November 1998). *Differential roles for visuospatial and verbal working memory in situation model construction*. Poster presented at the 37th annual meeting of the Psychonomic Society, Dallas, TX.

Contributed

1. du Pont, A., Rhee, S. H., Corley, R. P., Hewitt, J. K., & **Friedman, N. P.** (June, 2018). Are neuroticism, depressive rumination, and anger rumination genetically distinct? Talk presented by Alta du Pont at the 48th annual meeting of the Behavior Genetics Association, Boston, MA.
2. Reineberg, A. E., Hatoum, A. S., Evans, L. M., Banich, M. T., Hewitt, J. K., & **Friedman, N. P.** (June, 2018). Genetic and environmental influence on the human functional connectome: Evidence from studies of twins and unrelated individuals. Talk presented by Andrew Reineberg at the 48th annual meeting of the Behavior Genetics Association, Boston, MA.
3. Hatoum, A. S., Reineberg, A. E., Evans, L. M., Hewitt, J. K., & **Friedman, N. P.** (June,

- 2018). Scanner inference genome-wide association studies (SIGWAS): GWAS of inferred psychological traits using functional MRI connectivity. Talk presented by Alexander Hatoum at the 48th annual meeting of the Behavior Genetics Association, Boston, MA.
4. Ross, J. M., Ellingson, J. M., Rhee, S. H., Hewitt, J. K., Corley, R. P., & **Friedman, N. P.** (June, 2018). The impact of cannabis use on intelligence and executive functioning. Talk presented by J. Megan Ross at the 48th annual meeting of the Behavior Genetics Association, Boston, MA.
 5. Benca-Bachman, C. E., Wright, K., Corley, R. P., Hewitt, J. K., & **Friedman, N. P.** (June, 2018). Heritability of sleep duration from early adolescence to young adulthood. Talk presented by Chelsie Benca Bachman at the 48th annual meeting of the Behavior Genetics Association, Boston, MA.
 6. Snyder, H. R., **Friedman, N. P.**, & Hankin, B. L. (May, 2018). Links between transdiagnostic psychopathology and executive dysfunction in adolescence and emerging adulthood. Talk presented by Hannah Snyder at the 30th annual meeting of the Association for Psychological Science, San Francisco, CA.
 7. Karbin, Z. R., du Pont, A., & **Friedman, N. P.** (May, 2018). Differential associations between ruminative subtypes and intelligence. Poster presented by Zoe Karbin at the 30th annual meeting of the Association for Psychological Science, San Francisco, CA.
 8. Smith, L. L., Banich, M. T., & **Friedman, N. P.** (November, 2017). *Contributions of executive function to individual differences in response characteristics and attention problems*. Poster presented by Louisa Smith at the 58th annual meeting of the Psychonomic Society, Vancouver, Canada.
 9. Smolker, H. R., **Friedman, N. P.**, & Banich, M. T. (September, 2017). *Distinct and overlapping neuroanatomical correlates of dimensions of anxiety and depression*. Poster presented by Harry Smolker at the at the annual meeting of the Society for Research in Psychopathology, Denver, CO.
 10. Hatoum, A. S., Reineberg, A. R., Smolker, H. R., Hewitt, J. K., Banich, M. T., & **Friedman, N. P.** (September, 2017). *Integrating genetic and surface-based modeling to reveal pathways to common psychiatric variance*. Poster presented by Alex Hatoum at the at the annual meeting of the Society for Research in Psychopathology, Denver, CO.
 11. du Pont, A., Rhee, S. H., Corley, R. P., Hewitt, J. K., & **Friedman, N. P.** (September, 2017). *Rumination and executive functions: Understanding cognitive vulnerability for psychopathology*. Poster presented by Alta du Pont at the at the annual meeting of the Society for Research in Psychopathology, Denver, CO.
 12. Hatoum, A. S., Reineberg, A. E., Smolker, H. R., Hewitt, J. K., & **Friedman, N. P.** (June, 2017). A whole-brain atlas of genetic effects on psychiatric symptomology. *Behavior Genetics*, 47, 694. Talk presented by Alexander Hatoum at the 47th annual meeting of the Behavior Genetics Association, Oslo, Norway.
 13. Gustavson, D. E., Panizzon, M. S., Franz, C. E., **Friedman, N. P.**, Reynolds, C. A., Jacobson, K. C., Xian, H., Lyons, M. J., & Kremen, W. S. (June, 2017). Genetic/ environmental architecture and stability of executive functions in midlife. *Behavior Genetics*, 47, 643-644. Talk presented by Daniel Gustavson at the 47th annual meeting

of the Behavior Genetics Association, Oslo, Norway.

14. Reynolds, C. A., Corley, R. P., DeFries, J. C., **Friedman, N. P.**, Hewitt, J. K., Plomin, R., Rhee, S. H., Smolen, A., Stallings, M. C., & Wadsworth, S. J. (June, 2017). The Colorado adoption/twin study of lifespan behavioral development and cognitive aging (CATSLife): An introduction. *Behavior Genetics*, 47, 656. Talk presented by Chandra Reynolds at the 47th annual meeting of the Behavior Genetics Association, Oslo, Norway.
15. Reineberg, A. E., Banich, M. T., & **Friedman, N. P.** (June, 2017). *Functional connectivity while recovering from a recent mental task set*. Poster presented by Andrew Reineberg at the 23rd annual meeting of the Organization for Human Brain Mapping, Vancouver, Canada.
16. Woodward, K. E., Corley, R. P., du Pont, A., **Friedman, N. P.**, Hewitt, J. K., Hink, L., Robinson, J. L., Zahn-Waxler, C., & Rhee, S. H. (April, 2017). *Early concern and disregard for others during toddlerhood: Links to antisocial personality and psychopathy in adulthood*. Talk presented by Kerri Woodward at the at the 2017 Biennial Meeting of the Society for Research in Child Development, Austin, TX.
17. Smith, L. L., Banich, M. T., & **Friedman, N. P.** (March, 2017). *Individual differences in mixing costs relate to general executive function*. Poster presented by Louisa Smith at the 24th annual meeting of the Cognitive Neuroscience Society, San Francisco, CA.
18. Woodward, K. E., Fritz, M., Corley, R. P., **Friedman, N. P.**, Hewitt, J. K., & Rhee, S. H. (June, 2016). The association between marijuana use and depression. *Behavior Genetics*, 46, 814. Talk presented by Kerri Woodward at the 46th annual meeting of the Behavior Genetics Association, Brisbane, Australia.
19. Gustavson, D. E., du Pont, A., Rhee, S. H., Corley, R. P., Hewitt, J. K., & **Friedman, N. P.** (June, 2016). Genetic and environmental associations between procrastination and internalizing/externalizing problems. *Behavior Genetics*, 46, 785. Talk presented by Daniel Gustavson at the 46th annual meeting of the Behavior Genetics Association, Brisbane, Australia.
20. Hatoum, A. S., Gustavson, D. E., Rhee, S. H., Corley, R., Hewitt, J. K., & **Friedman, N. P.** (June, 2016). Do executive functioning and impulsivity predict overlapping variation in problem behaviors? *Behavior Genetics*, 46, 787. Poster presented by Alexander Hatoum at the 46th annual meeting of the Behavior Genetics Association, Brisbane, Australia.
21. du Pont, A., Rhee, S. H., Corley, R. P., Hewitt, J. K., & **Friedman, N. P.** (May, 2016). *Anger and depressive rumination: Factor structure and gender differences*. Poster presented by Alta du Pont at the 28th annual meeting of the Association for Psychological Science, Chicago, IL.
22. Hatoum, A. S., Rhee, S. H., Corley, R. P., Hewitt, J. K., & **Friedman, N. P.** (October, 2015). *Genetic and environmental etiologies of internalizing and externalizing behavior problem trajectories*. Poster presented by Alexander Hatoum at the 6th annual Integrating Genetics and the Social Sciences conference, Boulder, CO.
23. Hatoum, A. S., Rhee, S. H., Hewitt, J. K., Corley, R. P., & **Friedman, N. P.** (October, 2015). *Testing the hypothesis of internalizing and externalizing causality with longitudinal behavioral genetic data*. Poster presented by Alexander Hatoum at the annual meeting

of the Society for Research in Psychopathology, New Orleans, LA.

24. Gustavson, D. E., Miyake, A., Hewitt, J. K., & **Friedman, N. P.** (June, 2015). Understanding the cognitive and genetic underpinnings of procrastination: Evidence for shared genetic influences with goal management and executive function abilities. *Behavior Genetics*, 45, 659-660. Talk presented by Daniel Gustavson at the 45th annual meeting of the Behavior Genetics Association, San Diego, CA.
25. Woodward, K. E., Corley, R. P., **Friedman, N. P.**, Hatoum, A. S., Hewitt, J. K., Huijbregtse, B., Rhee, S. H., & Stallings, M. C. (June, 2015). Child language development and later alcohol use behaviors. *Behavior Genetics*, 45, 693-694. Talk presented by Kerri Woodward at the 45th annual meeting of the Behavior Genetics Association, San Diego, CA.
26. Hatoum, A. S., Rhee, S. H., Corley, R. P., Hewitt, J. K., & **Friedman, N. P.** (June, 2015). Genetic variance in executive functioning accounts for some of the comorbidity in internalizing and externalizing behavior. *Behavior Genetics*, 45, 661. Talk presented by Alexander Hatoum at the 45th annual meeting of the Behavior Genetics Association, San Diego, CA.
27. Benca, C. E., Derringer, J., Corley, R. P., Hewitt, J. K., & **Friedman, N. P.** (June, 2015). Predicting neural correlates of executive functioning with genetic risk scores for psychiatric disorders. *Behavior Genetics*, 45, 643-644. Talk presented by Chelsie Benca at the 45th annual meeting of the Behavior Genetics Association, San Diego, CA.
28. Gustavson, D. E., Miyake, A., Hewitt, J. K., & **Friedman, N. P.** (June, 2014). Genetic relations among procrastination, impulsivity, and goal-management ability. *Behavior Genetics*, 44, 661. Talk presented by Daniel Gustavson at the 44th annual meeting of the Behavior Genetics Association, Charlottesville, VA.
29. Benca, C. E., Derringer, J., Corley, R. P., Hewitt, J. K., & **Friedman, N. P.** (June, 2014). Predicting executive functioning with genetic risk scores for psychiatric disorders. *Behavior Genetics*, 44, 647-648. Talk presented by Chelsie Benca at the 44th annual meeting of the Behavior Genetics Association, Charlottesville, VA.
30. Woodward, K. E., Boeldt, D. L., Corley, R. P., DiLalla, L. F., **Friedman, N. P.**, Hewitt, J. K., Mullineaux, P., Robinson, J. L., & Rhee, S. H. (June, 2014). Gene-environment correlation as predictive of positive parenting behaviors. *Behavior Genetics*, 44, 688-689. Talk presented by Kerri Woodward at the 44th annual meeting of the Behavior Genetics Association, Charlottesville, VA.
31. Gustavson, D. E., Miyake, A., Hewitt, J. K., & **Friedman, N. P.** (March, 2014). *Genetic relations among procrastination, impulsivity, and goal-management ability: Implication for the evolutionary origin of procrastination*. Poster presented by Daniel Gustavson at the 2014 International Workshop on Statistical Genetic Methods for Human Complex Traits, Boulder, CO.
32. Kerr, G. T., Altamirano, L. J., **Friedman, N. P.**, Miyake, A., Correll, J., Bartholow, B. D., & Ito, T. A. (February, 2014). *Understanding conflict monitoring during an implicit racial bias task: The relationship between error-related negativities, executive functioning, and control*. Poster presented by Geoffrey Kerr at the 15th annual meeting of the Society for Personality and Social Psychology, Austin, TX.

33. Smith, A. K., Rhee, S. H., **Friedman, N. P.**, Corley, R. P., Hewitt, J. K., & Robinson, J. L. (June, 2013). The longitudinal association between temperament in toddlerhood and executive functions in late adolescence. *Behavior Genetics*, 43, 541-542. Talk presented by Ashley Smith at the 43rd annual meeting of the Behavior Genetics Association, Marseille, France.
34. Altamirano, L. J., Hewitt, J. K., & **Friedman, N. P.** (June, 2013). Phenotypic and genetic relationships among short-term memory, working memory, and intelligence. *Behavior Genetics*, 43, 506. Poster presented by Lee Altamirano at the 43rd annual meeting of the Behavior Genetics Association, Marseille, France.
35. Benca, C. E., **Friedman, N. P.**, Derringer, J., Corley, R. P., Young, S. E., & Hewitt, J. K. (June, 2013). Predicting individual differences in executive functions with a genetic risk score for behavioral disinhibition. *Behavior Genetics*, 43, 508-509. Poster presented by Chelsie Benca at the 43rd annual meeting of the Behavior Genetics Association, Marseille, France.
36. Smith, A. K., Rhee, S. H., **Friedman, N. P.**, Corley, R. P., Hewitt, J. K., Hink, L., & Robinson, J. L. (April, 2013). *The Developmental association between temperament and self restraint in toddlerhood*. Poster presented by Ashley Smith at the 2013 biennial meeting of the Society for Research in Child Development, Seattle, WA.
37. Kerr, G. T., Altamirano, L. J., **Friedman, N. P.**, Miyake, A., Correll, J., Bartholow, B. D., & Ito, T. A. (January, 2013). *Making an effort: 1/f noise in a racial bias task correlates with executive function and motivation to control prejudice*. Poster presented by Geoffrey Kerr at the 14th annual Meeting of the Society for Personality and Social Psychology, New Orleans, LA.
38. Hink, L. K., Rhee, S. H., Smith, A. K., Corley, R. P., **Friedman, N. P.**, Hewitt, J. K., & Robinson, J. L. (June, 2012). Genetic and environmental influences on the association between temperament in toddlerhood and personality in adolescence. *Behavior Genetics*, 42, 938. Talk presented by Laura Hink at the 42nd annual meeting of the Behavior Genetics Association, Edinburgh, Scotland.
39. Johnson, D. P., Whisman, M. A., Miyake, A., Altamirano, L. J., Hewitt, J. K., & **Friedman, N. P.** (June, 2012). Genetic and environmental influences on rumination and depression. *Behavior Genetics*, 42, 942. Talk presented by Daniel Johnson at the 42nd annual meeting of the Behavior Genetics Association, Edinburgh, Scotland.
40. Rhee, S. H., Corley, R. P., **Friedman, N. P.**, Hewitt, J. K., Hink, L. K., Johnson, D. P., Lahey, B. B., Robinson, J. L., Smith, A. K., Waldman, I. D., Young, S. E., & Zahn-Waxler, C. (June, 2012). Testing a developmental propensity model of conduct problems. *Behavior Genetics*, 42, 963-964. Talk presented by Soo Rhee at the 42nd annual meeting of the Behavior Genetics Association, Edinburgh, Scotland.
41. Smith, A. K., Rhee, S. H., **Friedman, N. P.**, Corley, R. P., Hewitt, J. K., & Robinson, J. L. (June, 2012). Genetic and environmental influences on the association between temperament and self-restraint in toddlerhood. *Behavior Genetics*, 42, 968. Talk presented by Ashley Smith at the 42nd annual meeting of the Behavior Genetics Association, Edinburgh, Scotland.
42. Vandever, J. M., **Friedman, N. P.**, Corley, R. P., Miyake, A., Young, S. E., Hewitt, J. K., & Stallings, M. C. (June, 2012). The role of executive functioning in the progression from

- substance use to dependence. *Behavior Genetics*, 42, 974. Poster presented by Joanna Vandever at the 42nd annual meeting of the Behavior Genetics Association, Edinburgh, Scotland.
43. Kerr, G. T., Altamirano, L. J., **Friedman, N. P.**, Miyake, A., Correll, J., Bartholow, B. D., & Ito, T. A. (January, 2012). *Executive function predicts controlled processing during implicit racial bias tasks*. Poster presented by Geoffrey Kerr at the 13th annual Meeting of the Society for Personality and Social Psychology, San Diego, CA.
 44. Ito, T. A., Correll, J., Bartholow, B. D., **Friedman, N. P.**, Miyake, A., & Altamirano, L. J. (January 2012). *Implicit racial bias is more than automatic associations: The role of executive function*. Talk presented by Tiffany Ito at the 13th annual meeting of the Society of Personality and Social Psychology, San Diego, CA.
 45. Vandever, J. M., **Friedman, N. P.**, Young, S. E., Miyake, A., Corley, R. P., Hewitt, J. K., & Stallings, M. C. (September 2011). *From regular substance use to substance dependence: The role of executive functioning and related genetic influences*. Poster presented by Joanna Vandever at the XIXth World Congress on Psychiatric Genetics, Washington, DC.
 46. Smith, A. K., Rhee, S. H., Corley, R. P., **Friedman, N. P.**, Hewitt, J. K., Hink, L., & Robinson, J. L. (June 2011). The magnitude of genetic and environmental influences on parental and observational measures of behavioral inhibition in toddlerhood. *Behavior Genetics*, 41, 936. Talk presented by Ashley Smith at the 41st annual meeting of the Behavior Genetics Association, Newport, RI.
 47. Rhee, S. H., Boeldt, D. L., Corley, R. P., DiLalla, E., **Friedman, N. P.**, Hewitt, J. K., Lahey, B. B., Mullineaux, P., Robinson, J. L., Smith, A. K., Waldman, I., & Young, S. E. (June 2011). The role of early cognitive ability and positive parenting on antisocial behavior. *Behavior Genetics*, 41, 933. Talk presented by Soo Rhee at the 41st annual meeting of the Behavior Genetics Association, Newport, RI.
 48. Herd, S. A., **Friedman, N. P.**, Chatham, C. H., Hazy, T. E., Brant, A. M., & O'Reilly, R. C. (April 2011). *Towards neural network models linking genetics to individual differences in executive functions*. Poster presented by Seth Herd at the 18th annual meeting of the Cognitive Neuroscience Society, San Francisco, CA
 49. Vandever, J. M., Miyake, A., Young, S. E., **Friedman, N. P.**, Corley, R. P., Hewitt, J. K., & Stallings, M. C. (October 2010). *Behavioral disinhibition and executive functions: Genetic relations are stronger for substance use than substance dependence*. Poster presented by Joanna Vandever at the XVIIIth World Congress on Psychiatric Genetics, Athens, Greece.
 50. Altamirano, L. J., **Friedman, N. P.**, & Miyake, A. (September 2010). *Stability of the structure of executive functions from late adolescence to young adulthood*. Poster presented by Lee Altamirano at the 5th European Working Memory Workshop, Civita Castelliana, Italy.
 51. Chatham, C. H., Brant, A. M., Herd, S. A., Hazy, T. E., Miyake, A., O'Reilly, R. C., & **Friedman, N. P.** (November 2009). *From the executive network to executive functions: A PBWM neural network model of the n-back task*. Talk and poster presented by Christopher Chatham at the 4th Computational Cognitive Neuroscience Society Conference, Boston, MA.

52. **Friedman, N. P.**, Miyake, A. (September 2009). *Developmental differences in toddlers' behavioral restraint predict general executive function ability 14 years later*. Talk presented by Akira Miyake at the 16th European Society for Cognitive Psychology (ESCoP) Conference, Krakow, Poland.
53. Altamirano, L. J., Miyake, A., & **Friedman, N. P.** (September 2009). *Goal neglect subtypes show contrasting relationships with executive abilities*. Poster presented by Lee Altamirano at the 16th European Society for Cognitive Psychology (ESCoP) Conference, Krakow, Poland.
54. Miyake, A., & **Friedman, N. P.** (September 2008). *How are working memory capacity, updating ability, and general intelligence related?: A behavioral genetic analysis*. Talk presented by Akira Miyake at the 4th European Workshop on Working Memory, Bristol, UK.
55. Rhee, S. H., Zahn-Waxler, C., Robinson, J. L., Corley, R. C., **Friedman, N. P.**, Hewitt, J. K., Young, S. E., Haberstick, B. C., & Van Hulle, C. A. (March, 2007). *The relationship between empathy/prosocial behavior and cognitive ability in a longitudinal sample of young twins*. Symposium poster presented by Soo Rhee at the 2007 biennial meeting of the Society for Research in Child Development, Boston, MA.
56. Miyake, A., **Friedman, N. P.**, & Saito, S. (November 2005). *The role of processing durations in working memory span performance: Experimental and correlational investigations*. Invited talk presented by Akira Miyake at "Bristol Workshop on Time and Short-Term Memory," Bristol, UK.
57. **Friedman, N. P.**, & Miyake, A. (March 2005). *Unity and diversity of inhibition and interference control functions: An individual differences perspective*. Invited talk presented by Akira Miyake at "The Place of Inhibitory Processes in Cognition" conference, Arlington, TX.
58. Godinez, D. A., Rhee, S. H., **Friedman, N. P.**, Young, S. E., Corley, R., DeFries, J. C., Miyake, A., & Hewitt, J. K. (June 2005). Genetic and environmental architecture and structure of the Wisconsin Card Sorting Task (WCST). *Behavior Genetics*, 35, 802-803. Poster presented by Detre Godinez at the 35th annual meeting of the Behavior Genetics Association, Hollywood, CA.
59. Miyake, A., & **Friedman, N. P.** (November 2004). *Where does the predictive power of the reading span test come from?* Talk presented by Akira Miyake at the 45th annual meeting of the Psychonomic Society, Minneapolis, MN.
60. Miyake, A., & **Friedman, N. P.** (August 2004). *Individual differences in working memory: What do working memory span tests really measure?* Talk presented by Akira Miyake at the 2nd International Conference on Working Memory, Kyoto, Japan.
61. Miyake, A., & **Friedman, N. P.** (September 2003). *Individual differences in executive functions and complex cognitive abilities*. Talk presented by Akira Miyake at the 13th conference of the European Society for Cognitive Psychology, Granada, Spain.
62. Miyake, A., **Friedman, N. P.**, Rettinger, D. A., Shah, P., & Hegarty, M. (July 2001). *How are visuospatial working memory, executive functioning, and spatial abilities related? A latent variable analysis*. Talk presented by Akira Miyake at the 3rd International

Conference on Memory (Symposium on the Role of Working Memory in Complex Cognition), Valencia, Spain.

Teaching

Advisory and Supervisory Responsibilities

Postdoctoral Mentoring

Andrew Reineberg 10/2016 – present

Predoctoral Mentoring

Claire Morrison, Behavior Genetics	2018 – present
Louisa Smith, Cognitive	2016 – present
--co-mentor with Marie Banich	
Alta du Pont, Clinical	2015 – present
--co-mentor with Soo Rhee	
Alexander Hatoum, Behavior Genetics	2014 – present
Harry Smolker, Cognitive	2014 – present
--mentor for behavioral genetics certificate; primary mentor Marie Banich	
Lee Altamirano, Cognitive	2013 – 2016
--co-mentor with Yuko Munakata	
Daniel Gustavson, Cognitive	2013 – 2016
--mentor for behavioral genetics certificate; primary mentor Akira Miyake	
Chelsie Benca, Behavior Genetics	2010 – 2017

Undergraduate Research Mentoring

Undergraduate Honor's Thesis

Zoe Karbin, Psychology	Defense 4/2018
Evann Mitchell, Neuroscience	Defense 10/2018
Hayley Tomkiewicz, Psychology	Expected Spring 2019

Independent Study (PSYC 4841)

Zoe Karbin	Spring 2017
Rebecca Naous	Fall 2017
Jenny Call	Spring 2018
Emma Osterberg	Fall 2018

Volunteer Research Assistants

Kylia Ahuna	Spring 2017
Emma Osterberg	Spring 2017-Summer 2018
Hayley Tomkiewicz	Spring 2017-present
Evann Mitchell	Fall 2017-Fall 2018
Miles Bowman	Fall 2017-Spring 2018
Rebecca Naous	Spring 2018

Predoctoral Committees (CU Boulder Psychology Department unless indicated)

Laura Hink	Dissertation 5/2018
Sarah Grover	Dissertation 11/2017
Laura Michaelson	Dissertation 11/2017
Jane Barker	Dissertation 11/2017

Jessica Keating	Dissertation 7/2017
Richard Border	Comp. exam 4/2017
Hannah Ritchie (CU IPHY dept)	Comp. exam 4/2017; Dissertation 4/2018
Andrew Reineberg	Dissertation 8/2016
Daniel Gustavson	Dissertation 4/2016
Geoffrey Kerr	Dissertation 8/2015
Helena Yardley	Comp. exam 3/2015
Daniel Johnson	Dissertation 5/2014
Ashley Smith	Dissertation 5/2014
Joanna Vandever	Comp. exam 11/2011; Dissertation 4/2014
Lee Altamirano	Comp. exam 4/2013
Kerri Woodward	Development Cmte 2013-2018; Dissertation 5/2018
Jeff Frazer, U. of Victoria	Dissertation 2/2012

Undergraduate Committees

Amelia Weller (CU EBIO dept)	Honor's thesis 4/2015
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Courses

Primary Teaching

Undergraduate:

Introduction to Behavioral Genetics (PSYC 3102)	Spring 2014 Fall 2014 Spring 2016 Fall 2016 Fall 2017 Fall 2018
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Graduate:

Structural Equation Modeling (PSYC 5761)	Spring 2015 Spring 2017 Spring 2018
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Topics in Advanced Structural Equation Modeling (PSYC 6761)	Fall 2015 Spring 2019
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Guest Lectures/Discussions

GRAD 5000 Responsible Conduct of Research (9/23/2013); PSYC 3102 Intro to Behavior Genetics (4/22/2014); PSYC 5112 Concepts in Behavioral Genetics: Scientific Integrity/Ethics (5/2/2018)

Professional Activities

Professional Memberships

- Behavior Genetics Association
- Association for Psychological Science

Editorial Service

Journal Editorial Boards

- *Developmental Science* (2014–present)

Guest Action Editor

- *Journal of Experimental Psychology: General* (one manuscript 2014-2016)

Ad Hoc Journal Reviews

- *Annals of Behavioral Medicine* (2014, 2015, 2018)
- *Applied and Preventive Psychology* (2007)
- *Behavior Genetics* (2009)
- *Brain and Cognition* (2015 [2])
- *British Journal of Clinical Psychology* (2018)
- *Clinical Psychological Science* (2018 [2])
- *Cognitive and Behavioral Neurology* (2009)
- *Cognition and Emotion* (2005)
- *Cortex* (2014)
- *Developmental Science* (2007, 2008 [2], 2009, 2010, 2011, 2014 [2])
- *Intelligence* (2016 [3], 2017)
- *Journal of Adolescence* (2014)
- *Journal of Child Psychology and Psychiatry* (2006)
- *Journal of Experimental Child Psychology* (2014)
- *Journal of Experimental Psychology: General* (1999, 2002, 2003, 2004 [2], 2005, 2009, 2014, 2015 [2], 2016)
- *Journal of Experimental Psychology: Learning, Memory, and Cognition* (2007, 2008, 2009 [2], 2013, 2015 [2])
- *Journal of Memory and Language* (2008)
- *Journal of Personality and Social Psychology* (2016)
- *Memory* (2000, 2006, 2009)
- *Memory and Cognition* (2010, 2011)
- *Mind, Brain, and Education* (2009)
- *Neuropsychologia* (2013 [2], 2014 [2])
- *Neuropsychology* (2006, 2016)
- *Proceedings of the National Academy of Sciences (PNAS)* (2011)
- *Psychological Assessment* (2011)
- *Psychological Bulletin* (2003, 2017, 2018)
- *Psychological Review* (2015)
- *Psychological Science* (2005, 2008, 2012, 2013, 2015, 2016)
- *Psychonomic Bulletin & Review* (2009)
- *Quarterly Journal of Experimental Psychology* (2006, 2008, 2009, 2017)
- *Science* (2012 [2])
- *Sleep* (2013)

Ad Hoc Grant Reviews

- 2008: Louisiana Experimental Program to Stimulate Competitive Research (EPSCoR)
- 2009: National Science Foundation (Social Psychology Program)
- 2017: National Science Foundation (Developmental Sciences Program)

Grant Review Panels

- 2017: National Institute of Diabetes and Digestive and Kidney Diseases Special Emphasis Panel; ZDK1 GRB-9 (M1); Neurocognitive Complications of Type 1 Diabetes; 1/26/2017
- 2017: National Institute of Diabetes and Digestive and Kidney Diseases Special Emphasis Panel; ZDK1 GRB-9 (04); NIDDK Ancillary Studies; 6/27/2017
- 2018: National Science Foundation Developmental Sciences Advisory Panel

Departmental Service

Department of Psychology and Neuroscience

- Human Research Committee Fall 2013 – Spring 2018
- Undergraduate Research Day Committee Fall 2014 – Spring 2017
- PUEC Committee (Instructors) Fall 2017
- Unit Review Committee Fall 2018
- Merit & Salary Review Committee Spring 2019

Institute for Behavioral Genetics

- Training Program Committee Fall 2013 – Spring 2017
- Faculty liaison for annual student mini conference Spring 2015 – present
- IBG Journal Club, organizer Spring 2017 – present
- IBG Faculty Search Committee Fall 2017 – Spring 2018
- Self-study Steering Committee Fall 2018