

UNIVERSITY OF COLORADO SCHOOL OF MEDICINE

Drew E. Winters, PhD.

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Biographical Sketch

Drew E. Winters, PhD. holds a Research Faculty appointment at the University of Colorado Anschutz Medical Campus, Department of Psychiatry. His research aims to improve mental health treatment for those elevated in antisocial phenotypes, including callous-unemotional traits, conduct problems, and psychopathy. He leverages behavioral experiments, functional magnetic resonance imaging, as well as advanced computational analyses to examine how brain function changes over the lifespan and its implication in the interaction between social cognition, affect, and executive function. By seeking to identify replicable neural mechanisms that support or disrupt these processes. Dr. Winters aims to inform more effective interventions for antisocial phenotypes.

Education

University of Colorado, Aurora, CO.	July 2023
- T32 Post-Doctoral Fellow: Developmental Psychobiology	
- Primary mentor: Dr. Joseph Sakai, M.D.	
Indiana University, Indianapolis, IN. – Ph.D.	April 2020
Indiana University, Indianapolis, IN. – MSW	May 2016
Purdue University, Fort Wayne, IN. – B.S.	May 2013

Certifications

Machine Learning Using Scikit-Learn in Python – Inira	May 2022
Data Scientist in Python - DataCamp	Nov 2021
Computational Neuroscience – Neuromatch Academy	July 2021
Data Scientist in R – DataCamp	April 2020
Multilevel Modeling II Advanced Topics – EITM	Oct 2020
Network Analysis II Advanced Topics – EITM	Oct 2020
Structural Equation Modeling with Latent Variables – EITM	Oct 2018

Academic Appointments

University of Colorado SOM	Psychiatry	Associate Research Faculty	2023–Present
Indiana University	Psychology	Adjunct Professor	2023–Present
University of Colorado SOM	Psychiatry	T32 Post-Doctoral Fellow	2020–2023
University of Colorado SOM	Psychiatry	Statistician	2021–2022
University of Michigan	Statistics	Instructor	2019–2023
Indiana University	Statistics	Adjunct Professor	2017–2020
Indiana University SOM	Psychiatry	Statistician	2018–2020
Indiana University SOM	Social Work	Research Assistant	2016–2020
Indiana University	Psychology	Research Assistant	2014–2015

Clinical Positions

UCHealth Encompass program - Aurora, CO	Therapist	2020–2021
Family Works Inc. - Indianapolis, IN	Therapist (Home-Based)	2016–2020
Rogers behavioral health – Skokie IL	Behavioral Therapist	2015–2016
ASPIRE behavioral health – Indianapolis IN	Case Worker (Home-Based)	2013–2015

Park Center mental health – Fort Wayne, IN	Case Worker (Home-Based)	2008–2013
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Honors, Special Recognitions, and Awards

American College of Neuropsychopharmacology (ACNP) Travel Award	2024
Joseph and Alida Newman Award	2023
Society for the Scientific Study of Psychopathy (SSSP)	
University of Colorado, Postdoctoral Association Travel Award	2021
Multilevel Modeling II: Advanced Topics – Statistical Competence	2021
Empirical Implications of Theoretical Models	
Network Analysis II: Advanced Topics – Statistical Competence	2021
Empirical Implications of Theoretical Models	
Structural Equation Modeling with Latent Models – Statistical Competence	2018
Empirical Implications of Theoretical Models	
Developmental, Child, and Family Psychology Fellowship	2018
ICPSR Quantitative Methods of Social Research Ann Harbor, MI	
Indiana University Travel Fellow	2017–2019
Graduate Professional Student Government Fellowship	2016
Miranda Pang Endowment	2014
Phi Kappa Phi: Academic Honor Society	2013
Tau Upsilon Alpha: Human Services Academic Honor Society	2013
Hellen I. and Rodney E. Nern Scholarship	2013

Membership in professional organizations

Society for the Scientific Study of Psychopathy (SSSP)	2022
Society of Clinical Child and Adolescent Psychology	2020
Society for Social Work and Research (SSWR)	2017

Major Committee and Service Responsibilities

Board of Directors, National Association of Alcohol and other Drugs of Abuse Counselors, Indiana Chapter, Indianapolis, IN	2011–2018
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Licensure and Board Certification

Licensed Clinical Social Worker (LCSW)	2023–Present
Licensed Social Worker (LSW)	2015–2023
Nationally Certified Addiction Counselor level two (NCAC-II)	2013–2015

Review and Referee Work

Ad Hoc Reviewer

Brain Connectivity	2024
Journal of Integrative Neuroscience	2024
iScience	2024
Human Brain Mapping	2024
Cortex	2023
Brain and Behavior Functions	2023
European Child and Adolescent Psychiatry	2023
Personality and Individual Differences	2023
Translational Psychiatry	2023
Neuroimage	2022
Emotion	2022
Journal of Drug Issues	2022
Addictive Behaviors Reports	2022

Brain Imaging and Behavior	2022
Cerebral Cortex	2021
Neuroscience Letters	2021
Psychophysiology	2021
Journal of Drug and Alcohol Dependence	2021
Journal of Juvenile Justice	2018
Journal of Child and Family Studies	2017
Mindfulness	2016

Open-Source Software Packages

resmod. A python package that derives interaction terms using centered residuals.
<https://pypi.org/project/resmod/>, role: author

fsub_extractor. A python package that ties diffusion and functional brain data together.
https://github.com/smeisler/fsub_extractor, role: contributor

Invited Extramural lectures, Presentations and Visiting Professorships

Winters, D.E., <i>Statistical approaches to model functional brain data.</i> Quantitative Collective, Pittsburgh, PA.	Dec 2023
Winters, D.E., <i>Distinct functional brain patterns underlying executive and social function in adolescents with callous-unemotional traits.</i> EDEN lab at the University of Pennsylvania, Philadelphia, PA.	August 2023
Winters, D.E., Massey, S., Sakai, J. T., <i>Adolescent substance use in response to social consequences of use: The role of empathy.</i> Research Society on Alcoholism, Bellevue, WA.	June 2023
Winters, D.E., Sakai, J.T., <i>Affective theory of mind impairments underlying callous-unemotional traits and the role of cognitive control.</i> Society for Scientific Study of Psychopathy. New York, New York	May 2023
Winters, D.E. , <i>Functional Brain Properties in Adolescents with Callous-Unemotional Traits and Potential Mechanisms.</i> Developmental Psychobiology Research Group, Denver, CO	April 2023
Winters, D.E. , <i>Longitudinal Data Analysis Using Secondary Data. S728 multivariate statistics,</i> Dr. Sadaaki Fukui. Indiana University School of Social Work, Indianapolis, IN.	Jan 2023
Winters, D.E. , Sakai, J.T., Carter, R.M., <i>Computational Lesioning of Heterogenous Functional Connectomes Explains Variance in Adolescent Callous-Unemotional Traits.</i> Neurohackadamy, University of Washington, Seattle, WA	July 2022
Sanchez, C.R., Cooley, J.L., Winters, D.E. , Ricker, B.T., & Fite, P.J. <i>Prospective associations between forms of aggression and peer victimization: The moderating role of prosocial behavior.</i> Biennial Research Conference on Relational Aggression, Virtual Conference.	July 2022
Winters, D.E. , <i>Introduction to R for medical students.</i> University of Colorado Anschutz Medical Campus, Aurora, CO	April 2022
Winters, D.E. , <i>Cognitive Load Sensitivity Impacts Theory of Mind Impairments in Callous-Unemotional Traits.</i> Developmental Psychobiology Research Group, Denver, CO	April 2022

Winters, D.E. , <i>Affective Theory of Mind Impairments in Youth with Callous-Unemotional Traits: The Role of Cognitive Control</i> . American College of Neuropsychopharmacology. San Juan, PR	Dec 2021
Winters, D.E. , <i>Network typology of adolescents with callous-unemotional traits</i> . Department of Psychiatry Poster Session, University of Colorado Anschutz Medical Campus, Aurora, CO	March 2021
Winters, D.E. , <i>Adolescent Prosocial Behavior and Affective Theory of Mind: The Role of Cognitive Control and Callousness</i> . Developmental Psychobiology Research Group, Denver, CO	March 2021
Winters, D.E. , <i>Longitudinal Data Analysis Using Secondary Data</i> . S728 multivariate statistics, Dr. Sadaaki Fukui. Indiana University School of Social Work, Indianapolis, IN.	Jan 2021
Winters, D.E. , <i>Neural Connectivity of Empathy and its Impairments in Adolescents</i> . Developmental Psychobiology Research Group, Denver, CO	Oct 2020
Winters, D.E. , <i>Statistical Approaches of Propensity Score Matching</i> . Training the Indiana Department of Children Services data analysis and evaluation team, Indianapolis, IN.	March 2020
Winters, D.E. , <i>Secondary data analysis</i> . S728 multivariate statistics, Dr. Sadaaki Fukui. Indiana University School of Social Work, Indianapolis, IN.	Jan 2020
Winters, D.E. <i>Mindfulness and Acceptance and Commitment Therapy in Clinical Practice</i> . Advanced clinical practice, Dr. Vincent Starnino, instructor. Indiana University School of Social Work, Indianapolis, IN.	June 2017
Winters, D.E. <i>Mindfulness in Addictions Treatment</i> . Presentation to staff and clients at the Life Recovery Center, Indianapolis, IN.	Aug 2016
Winters, D.E. <i>Mindfulness in Clinician Self-Care, and Clinical Practice</i> . Presented to the staff and honor society recipients of Chi Eta Sigma for marriage and family therapist. Purdue University.	April 2016

Teaching Record

Indiana University– Adjunct Professor in Psychology

PSY-I 535 Developmental Neuroscience	Online	Spring 2024
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University of Michigan: Institute for Social Research ICPSR - Instructor

Multilevel Modeling I: Introduction and applications	Seminar	Summer 2023
Regression Analysis II: Linear models	Online	Summer 2020
Regression Analysis II: Linear models	Seminar	Summer 2019

Indiana University– Adjunct Professor in Social Work

S728 Advanced Statistics – Statistics Lab	Seminar	Spring 2020
S718 Intermediate Statistics – Statistics Lab	Seminar	Fall 2019
S728 Advanced Statistics – Statistics Lab	Seminar	Spring 2019
S718 Intermediate Statistics – Statistics Lab	Seminar	Fall 2018
S517 Assessment in Mental Health & Addictions	Seminar	Summer 2018

Indiana University School of Social Work – Teaching Assistant

S623 Practice Research Integrative Seminar	Online	Summer 2017
S623 Practice Research Integrative Seminar	Online	Spring 2017
S623 Practice Research Integrative Seminar	Seminar	Fall 2016

Mentoring

Women in STEM – Role: Research Mentor	2023-Current
- I mentored Loretta Tsu and Jillian King on the areas of conducting research, statistical analyses, and navigating academia.	
Juliet Spitz, B.A. – Role: Research Mentor	2023-Current
- I mentored Juliet in research recruitment, data management, statistical analyses using modern programming languages, and dissemination.	
Harshith Alele, MS. – Role: Research Mentor	2023
- I mentored Harshith in conducting research and writing manuscripts resulting in one article submission.	
Neuromatch Academy – Role: Computational Neuroscience Mentor	2022
- I mentored a group of five participants in the computational neuroscience track on completing capstone project.	
Gabriel Yepes, M.D. – Role: Research Mentor	2021
- I mentored Dr. Yepes on conducting research and writing manuscripts resulting in one research publication.	

Grant Support

Current

Developmental Psychobiology Endowment. Project title: ‘Cognitive control limitations amongst adolescents with callous-unemotional traits that impact the capacity for theory of mind: Evidence from a dual-task paradigm.’ Funding amount \$7,355 <u>Role</u> : PI	2023–2025
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Submitted and Pending Grants

National Institute of Mental Health – K23. Project Title: ‘Effects of transcranial magnetic stimulation on functional impairment underlying psychopathy of social cognition and cognitive processing.’ <u>Role</u> : PI	2024-2029
National Institute of Mental Health – K23. Project title: ‘Functional connectivity underlying callous-unemotional traits in early adolescents implicated in cognitive control impairments that impact affective theory of mind.’ <u>Role</u> : PI	2023–2028
National Institute of Mental Health – R21. Project title: ‘Functional brain network topology and changes in salience, social, and executive function systems in adolescents with callous-unemotional traits.’ <u>Role</u> : PI	2023–2025

Completed

National Institutes of Mental Health T32MH015442-42; Laudenslager, Mark (PI), Developmental Psychopathology, Psychobiology & Behavior. <u>Role</u> : Postdoctoral Fellow	2020–2023
Developmental Psychobiology Endowment. Project title: ‘The effects of cognitive load on prosocial behavior amongst early adolescents with high callous-unemotional traits and typically developing controls.’ Funding amount \$7,220 <u>Role</u> : PI	2021–2022
Indiana Department of Children Services Title IV-E Waiver A93-3-13-4F-C0-0981; Hall, Jim (PI), Pierce, Barbra (PI), Indiana University School of Medicine. <u>Role</u> : Research Analyst / Statistician	2017–2020

Bibliography

Published

Open science legend: * = preregistered; + = analysis code shared; # = shared/open data

Published Peer-Reviewed Articles

- Sanchez, C.R., Ricker, B., **Winters, D.E.**, Fite, P.J., Cooley, J. (2024). Associations Between Forms of Aggression and Peer Victimization: Does Prosocial Behavior Matter? *Development and Psychopathology*. DOI: 10.1017/S0954579423001694
- *+**Winters, D. E.**, Guah, A., Sakai, J.T. (2023). Connectome-based predictive modeling of empathy in adolescents with and without the low-prosocial emotion specifier. *Neuroscience Letters*. DOI: 10.1016/j.neulet.2023.137371
- *+**Winters, D. E.**, Leopold, D. R., Sakai, J. T., & Carter, R. M. (2023). Efficiency of heterogenous functional connectomes explains variance in callous-unemotional traits after computational lesioning of cortical midline and salience regions. *Brain Connectivity*. DOI: 10.1089/brain.2022.0074
- *+**Winters, D.E.**, Sakai, J.T. (2023). Cognitive processes underlying prosocial decision making in callous-unemotional traits. *Psychopathy & Behavioral Assessment*. DOI: 10.1007/s10862-023-10043-x
- +**Winters, D.E.**, Sakai, J.T. (2023). Affective theory of mind impairments underlying callous-unemotional traits and the role of cognitive control. *Cognition and Emotion*. DOI: 10.1080/02699931.2023.2195154
- +**Sakai, J.T.**, Chintaluru, Y., **Winters, D.E.**, Raymond, K., McWilliams, S., Carter, R.M., Mikulich, S. (2023) A revised prosocial behavior game: Testing association with psychopathic traits and the effects of moral elevation using a randomized clinical trial. *PLOS One*.
- Winters, D.E.**, Leopold, D.R., Sakai, J.T., Carter, R.M. (2023) Resting-state connectivity underlying cognitive control's association with perspective taking in callous-unemotional traits. *Psychiatry Research: Neuroimaging*. DOI: 10.1016/j.psychres.2023.111615
- Winters, D.E.**, Massey, S., Sakai, J.T., (2023) Adolescent substance use outcomes in response to social consequences of use: the role of empathy. *Journal of Drug Issues*. DOI: 10.1177/00220426231159303
- *+**Richie-Halford, A.**, Cieslak, M., Ai, L., Caffarra, S., Covitz, S., Franco, A.R., Karipidis, I.I., Kruper, J., Milham, M., Avelar-Pereira, B., Roy, E., Sydnor, V.J., Yeatman, J.D., The Fibr Community Science Consortium (**Winters, D.E.**), Theodore D. Satterthwaite, Ariel Rokem (2022) An analysis-ready and quality-controlled resource for pediatric brain white-matter research. Scientific Data. DOI: 10.1038/s41597-022-01695-7
- + **Winters, D.E.**, Hyde, L. W. (2022). Shared Functional Network Connectivity Between Callous-Unemotionality and both Cognitive and Affective Empathy. *Journal of Affective Disorders*. DOI: 10.1016/j.jad.2022.08.103
- Winters, D.E.**, Sakai, J.T. (2022) Emotion identification for self and other associated with callous-unemotional traits and sex differences in early adolescents. *Child Psychiatry & Human Development*. DOI: 10.1007/s10578-022-01429-1
- Winters, D.E.**, Pruitt P. J., Damoiseaux J.S, Sakai, J.T. (2021). Moderating effect of CU traits on functional connectivity underlying empathy in adolescents. *Psychiatry Research Neuroimaging*. DOI: 10.1016/j.psychres.2021.111429
- Winters D.E.**, Sakai, J.T., Carston, R.M. (2021) Resting-state network topology characterizing

callous-unemotional traits in adolescence. *Neuroimage: Clinical*. DOI: 10.1016/j.nicl.2021.102878

Winters, D.E., Susan M., Hopfer, C., Sakai, J.T. (2021). Moderating effects of CU traits on transdiagnostic symptoms association with suicidality in adolescents. *Child Psychiatry and Human Development*. DOI: 10.1007/s10578-021-01256-w

Winters D.E., Pruitt P. J., Fukui S., Cyders M.A., Pierce B. J., Lay K., Damoiseaux J.S. (2021). Indirect paths between functional connectivity underlying heterogenous depression symptoms in adolescents via cognitive and affective empathy. *Child Psychiatry and Human Development*. DOI: 10.1007/s10578-021-01242-2

Winters, D.E., Pruitt P.J., Fukui, S., Cyders, M. A., Pierce, B. J., Lay, K., Damoiseaux, J. S. (2021). Network functional connectivity underlying dissociable cognitive and affective components of empathy in adolescence. *Neuropsychologia*. DOI: 10.1016/j.neuropsychologia.2021.107832

Winters, D.E., Brandon-Friedman, R., Yepes, G., Hinkley, J. (2020). Systematic review and meta-analysis of socio-cognitive and socio-affective processes association with adolescent substance use. *Drug and Alcohol Dependence*. DOI: 10.1016/j.drugalcdep.2020.108479

Winters, D.E., Pierce, B. J., Imburgia, T. (2020) Concrete services usage on child placement stability: Propensity score matched effects. *Child and Youth Service Review*. DOI: 10.1016/j.chilyouth.2020.105362

Winters, D.E., Wu, W., Fukui, S. (2020). Longitudinal effects of cognitive and affective empathy on adolescent substance use. *Substance Use & Misuse*, 1-7. DOI: 10.1080/10826084.2020.1717537

Winters, D.E., Fukui, S., Leibenluft, E., Hulvershorn L.A., (2018). Improvements in Irritability with Open-Label Methylphenidate in Youth with Comorbid Attention Deficit/Hyperactivity Disorder and Disruptive Mood Dysregulation Disorder. *Journal of Child and Adolescent Psychopharmacology*, 28(5): 298-305.

Beerbower, E., **Winters, D.E.,** Kondrat, D. (2018). Bio-psycho-social-spiritual needs of adolescents and young adults with life-threatening illnesses: Implications for social work practice. *Social Work in Health Care*, 1-17. DOI: 10.1080/00981389.2018.1430091

Winters, D.E., Beerbower, E. (2017). Mindfulness and Meditation as an Adjunctive Treatment for Adolescents Involved in the Juvenile Justice System: Is Repairing the Brain and Nervous System Possible? *Social Work in Health Care*, 1-21. Doi:10.1080/00981389.2017.1316341

Published Book Chapters

Armstrong, E., **Winters, D.E.,** Jagers, J. (2018). Mental Health in Prison Populations. Serving the Stigmatized: Working within the Incarcerated Environment. W.T. Church and D.W. Springer, Oxford University Press.

Technical Reports for the State of Indiana

Winters, D.E., Imburgia, T., Pierce, B. J. (2017, 2018, 2019, 2020). Concrete Services Spending and outcomes for youth. Indiana Department of Child Services Child Welfare Title IV-E Waiver Demonstration Project Extension: Final Report.

Unpublished

Under Review

*+ # Pettine W.W., **Winters D.E.**, Murray, J.D., Anticevic, A., Jacob, S. (under review). A tool for longitudinal assessment of individual differences in judgment calibration during category learning. Preprint DOI: <https://doi.org/10.31234/osf.io/n32gy>

*+ # **Winters, D.E.**, Dugre J., Sakai, J.T., Carter, R.M. (under review). Executive function and underlying brain network distinctions for callous-unemotional traits and conduct problems in adolescents. Preprint DOI: <https://doi.org/10.1101/2023.10.31.565009>

*+ # Dugre J., Hopfer, C., **Winters, D.E.** (under review). The Dark Sides of the Brain: A Systematic Review and Meta-Analysis of Functional Neuroimaging Studies on Aggression. Preprint DOI: <https://doi.org/10.31234/osf.io/4zafd>

Winters, D.E., Sakai, J.T. (under review). Prosocial Behavior Limitations Associated with Callous-Unemotional Traits are Moderated by Internalizing Symptoms.

Winters, D.E., Sakai, J.T. (under review) Callous-Unemotional Traits Association with Prosocial Behavior and the Mediating Role of Cognitive Control.

In preparation

Winters, D.E., Schacht, J., Cognitive Control and Brain Regions Implicated at Various Stages of Alcoholism.

Winters, D.E., Connectome-Based Data-Driven Subgroups Association with Theoretical Groups of Callous-Unemotional Traits and Low Prosocial Emotion Specifier

*+ **Winters, D.E.**, Kim, H., Leopold, D. R., Carlson, K., & Banich, M. Difference in Task-Based Functional Connectivity Under Higher Cognitive Demands Unique to Callous-Unemotional Traits.